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DLA SYSTEMS MODERNIZATION METHODOLOGY

LOGICAL ANALYSIS AND DESIGN PROCEDURES

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LOGICAL ANALYSIS AND DESIGN PROCEDURES

DLA OFFICE OF INFORMATION
SYSTEMS AND TECHNOLOGY
INFORMATION ARCHITECTURE BRANCH

VERSION 1.0
JULY 1990

PREFACE

This document is the first of a series of planned issuances comprising the DLA Systems Modernization Methodology (SMM), for the purpose of implementing information engineering and data management in the Defense Logistics Agency. These Logical Analysis and Design Procedures are to be used to create the logical level of DLA's information architecture. In the DLA Information Engineering systems development life cycle, this step corresponds to the business area analysis (BAA) phase.

This initial version of these procedures could not have been developed without the patient participation of the Contractor Profile Pilot Team, and the many expert consultants who contributed their talents to this effort. These procedures were tested and refined during the production of the functional description documentation for the Contractor Profile System, as the first prototype for an information engineering approach to modernization in DLA. It is hoped that future versions of SMM issuances will further incorporate the experiences and distinctive needs of the DLA community, supporting both the functional users and the systems developers.

DLA Office of Information
Systems and Technology
Information Architecture Branch

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DLA-MIE	1. INFORMATION STRATEGY PLANNING	2. BUSINESS AREA ANALYSIS	3. BUSINESS SYSTEM DESIGN (BSD)	4. TECHNICAL DESIGN (TD)	5. CONSTRUCTION	6. TRANSITION	7. OPERATION
DLA-IEA	1. CONCEPTUAL MODELING	2. LOGICAL ANALYSIS AND DESIGN	3. PHYSICAL DESIGN (TBD)		5. CONSTRUCTION (TBD)	6. TRANSITION (TBD)	7. OPERATION (TBD)
IE PROC	1. CONCEPTUAL MODELING PROCEDURES	2. LOGICAL ANL & DESIGN PROCED.	3. BSD PROCEDURES (TBD)	4. TD PROCEDURES (TBD)	5. CONSTRUCTION PROCEDURES (TBD)	6. TRANSITION PROCEDURES (TBD)	7. OPERATION PROCEDURES (TBD)
7935-A	1. NEED JUSTIFICATION	2. CONCEPTS DEVELOPMENT	3. DESIGN		4. DEVELOPMENT	5. DEPLOYMENT	6. OPERATION
7920.1	1. NEED JUSTIFICATION	2. CONCEPTS DEVELOPMENT	3. DESIGN		4. DEVELOPMENT	5. DEPLOYMENT	6. OPERATION
5000.2	1. PROGRAM INTIT./ MISSION NEED DECISION	2. CONCEPT DEMO/ VALIDATION DECISION	3. FULL-RATE PRODUCTION DECISION		4. LOGISTICS READINESS AND SUPPORT REVIEW		5. MAJOR UPGRADE OR SYSTEM REPLACMNT. REV.
2167-A		1. SYSTEM REQ ANALYSIS/ DESIGN	3. PRELIMINARY DESIGN		5. CODING AND CSU TESTING	6. CSC INTEGRATION AND TESTING	
		2. SOFTWARE REQUIREMENTS ANALYSIS	4. DETAILED DESIGN			7. CSCI TESTING	
						8. SYSTEM INTEGRATION AND TESTING	

DLA-MIE = DLA Methodology for Information Engineering
DLA-IEA = DLA Information Engineering Approach
IE PROC = DLA Information Engineering Procedures
7935-A = DoD AIS Documentation Standards
7920.1 = DoD Life-Cycle Management of AIS's
5000.2 = Defense Acquisition Program Procedures
2167-A = Defense System Software Development

DLA SYSTEMS MODERNIZATION METHODOLOGY

VERSION 1.0 PROCEDURES
FOR
LOGICAL ANALYSIS AND DESIGN

9 JULY 1990

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0.1 SUMMARY

This document addresses the procedures for constructing logical information models. These procedures are part of the DLA Systems Modernization Methodology and are in conformance with the DLA information engineering approach. Please refer to the documentation of these subjects for more detailed discussions of the relationships between the models which precede and follow logical models, why information engineering is used, and why logical models should be prepared.

These procedures were developed and tested during the logical analysis of the Contract and Contract Administration business areas. They can and are intended to be applied to the analysis of any functional area.

Figure 0-1 DLA SYSTEM MODERNIZATION METHODOLOGY MODELS AND ARCHITECTURES depicts the relationship of a logical model to the other models and architectures which are specified in the DLA information approach. The procedures which are specified in this document are for SCOPING between the conceptual model and the logical model, and for development of the LOGICAL FUNCTIONAL ARCHITECTURE, MAPS, and LOGICAL DATA ARCHITECTURE.

The major steps required to develop logical models are: Scoping, Global Analysis, Unit Analysis, Normalization, and Develop User Views. Each of these major steps may be composed of substeps. Each step contains standard sections as follows: Purpose, Components, Input Products, General Procedures, Output Products, Rules, Examples, Detailed IEW Procedures, and Detailed PCD Procedures.

The primary automated tools are IEW (Information Engineering Workbench), and PCD (PC Dictionary). The detailed procedures for input and maintenance of the logical model in these tools are provided in appendices to each step's section.

Figure 0-2 LOGICAL MODEL PRODUCTS AND COMPONENTS depicts the relationships between the products and components of the logical model. The products which are prepared for scoping, the functional architecture, maps, and the data architecture are shown down the left side of the diagram within the "products" box. The components which are addressed by each product are shown down the right side of the page in the"components" box. The lines between the products and components indicate which components are addressed by each product. A version of this diagram is provided for each logical modeling step.

Figure 0-3 LOGICAL MODEL STEP PRODUCTS products are addressed by each of the steps required to complete the logical model. The cells of this matrix may contain the letters C, R, U, or D. "C" means that the product is created by the step. "R" means that the product is read (and reviewed), "U" means that it is updated, and "D" means that it may be deleted. A version of this diagram is provided for each logical modeling step.

Figure 0-4 LOGICAL MODEL STEP COMPONENTS shows which components are addressed by each of the steps required to complete the logical model. The cells of this matrix may also contain the letters C, R, U, or D. A version of this diagram is provided for each modeling step.

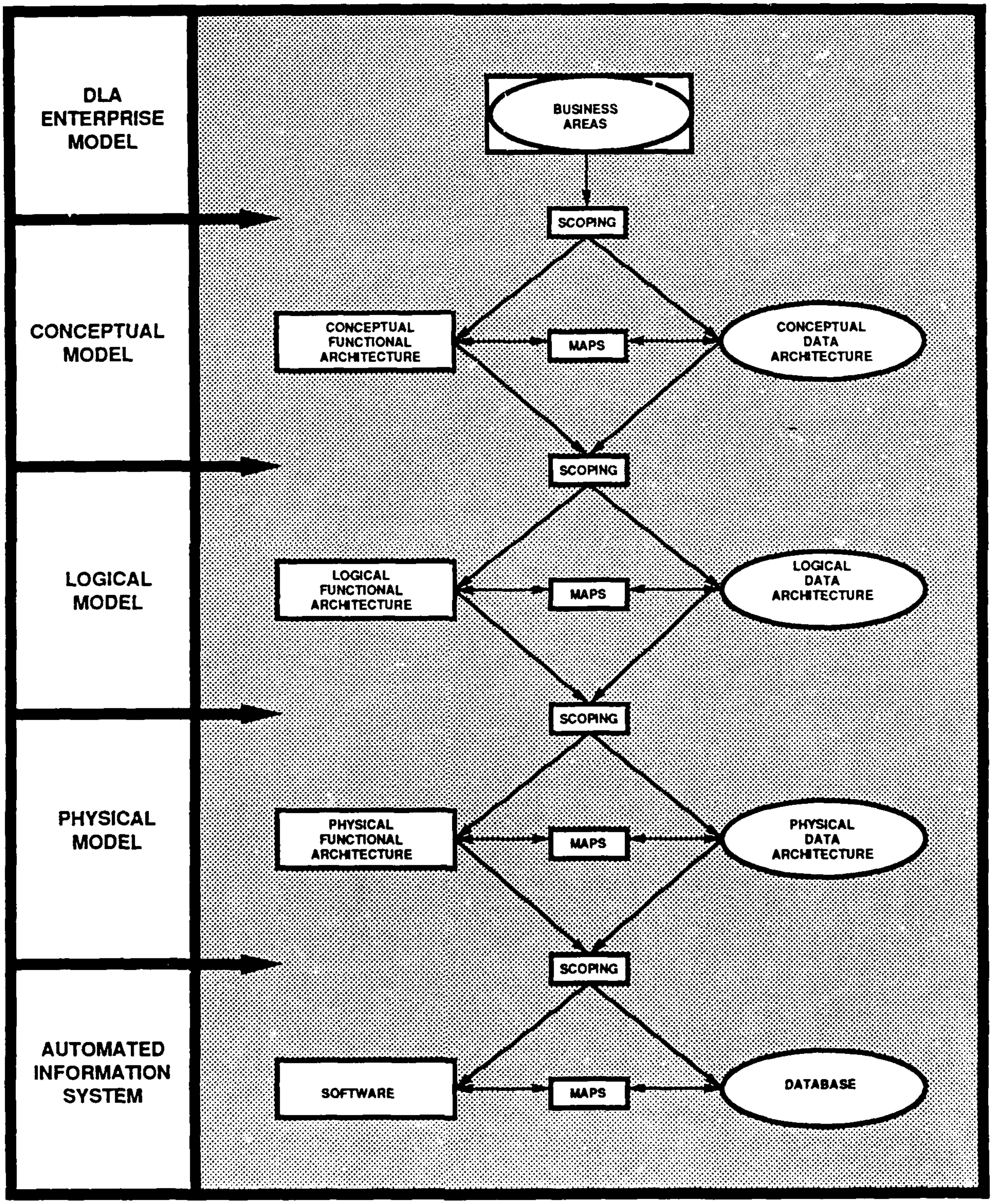


FIGURE 0-1
DLA SYSTEM MODERNIZATION METHODOLOGY
MODELS AND ARCHITECTURES

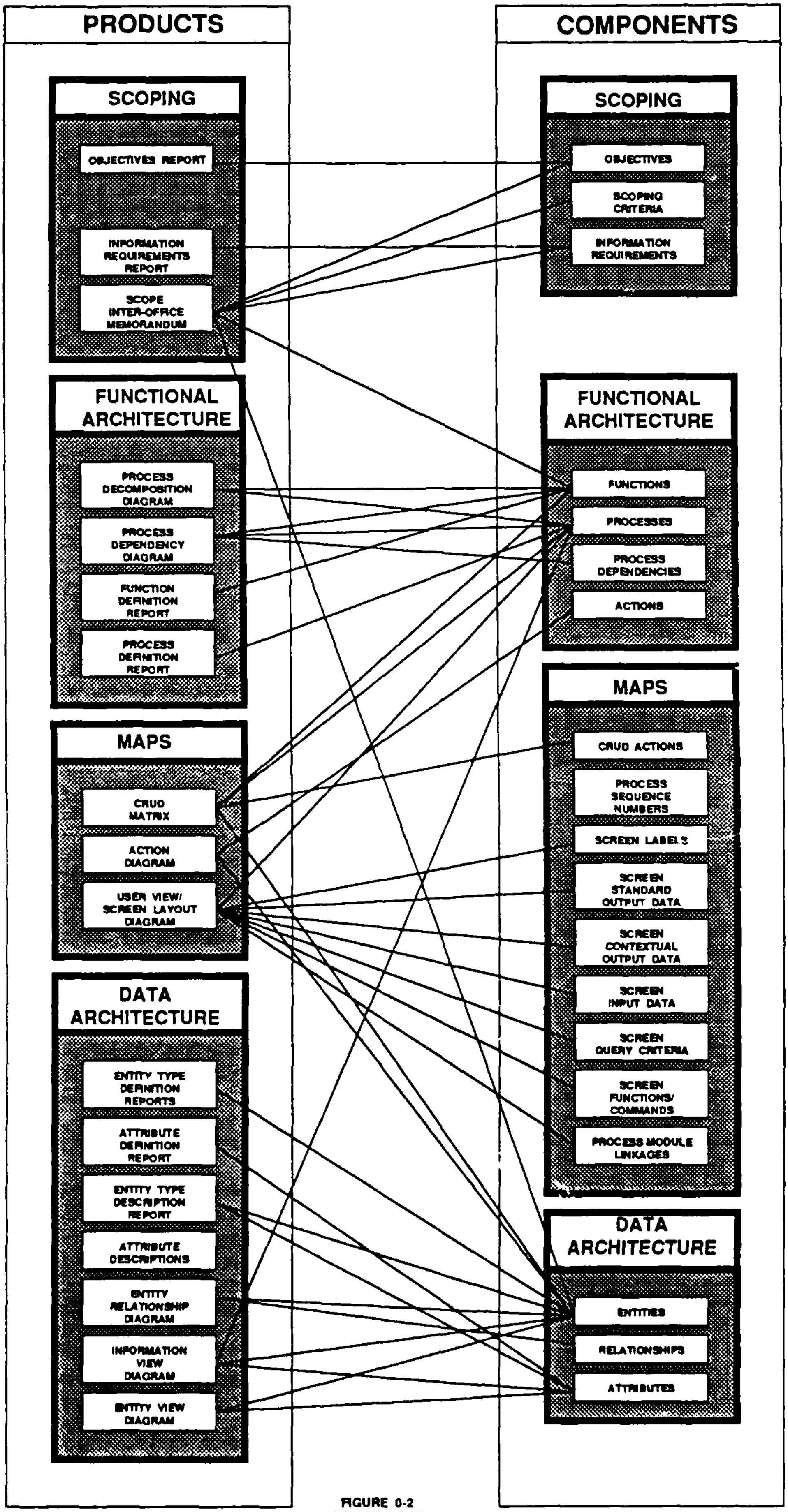


FIGURE 0-2
LOGICAL MODEL
PRODUCTS AND COMPONENTS

PRODUCTS / LOGICAL MODEL STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. SCOPING																		
1.1 DEFINE SCOPING CRITERIA	CR	CR	C															
1.2 SELECT CONCEPTUAL ENTITIES		R										RU				R		
1.3 SELECT FUNCTIONS	R		R				RD		R									
1.4 PREPARE SCOPE MEMORANDUM	R	R	C				R					R				R		
2. GLOBAL ANALYSIS																		
2.1 DEVELOP AND ATTRIBUTE ENTITY RELATIONSHIP MODEL			R									CRU	C	CU	C	CU		
2.2 DECOMPOSE PROCESSES					C	C	R	CR	R			R				R		
2.3 ASSOCIATE PROCESSES AND ENTITIES																		
2.3.1 DEVELOP CRUD MATRIX								R	CR			R						
2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX						R		R	CU			R						
2.4 REVIEW SCOPE																		
2.4.1 SELECT ENTITIES		R										CRU				U		
2.4.2 SELECT PROCESSES	R	R						RU	R									
2.5 PREPARE SCOPE MEMORANDUM	R	R	C		R	R	R	R	R			R	R	R	R	R		
3. UNIT ANALYSIS																		
3.1 DEVELOP INFORMATION VIEWS								R	R			R		RU	CR	CU	C	RU
3.2 DEVELOP ACTION DIAGRAMS					R	R		R	R	C								
3.3 DEVELOP ATTRIBUTE DESCRIPTIONS													R		C			
4. NORMALIZATION												R	CU	RU	CU	R		
5. DEVELOP USER VIEWS	R	R								RU	CU	U	U				R	

FIGURE 0-3
LOGICAL MODEL
STEP PRODUCTS

LOGICAL MODEL STEPS \ COMPONENTS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. SCOPING																			
1.1 DEFINE SCOPING CRITERIA	CR	C	CR																
1.2 SELECT CONCEPTUAL ENTITIES			R														RU	RU	
1.3 SELECT FUNCTIONS	R		R	RD															
1.4 PREPARE SCOPE MEMORANDUM	R		R	R													R	R	
2. GLOBAL ANALYSIS																			
2.1 DEVELOP AND ATTRIBUTE ENTITY RELATIONSHIP MODEL			R														CRU	CRU	
2.2 DECOMPOSE PROCESSES				R	CR	C		R									R	R	
2.3 ASSOCIATE PROCESSES AND ENTITIES																			
2.3.1 DEVELOP CRUD MATRIX					R			CR											
2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX					R	R			C								R		
2.4 REVIEW SCOPE																			
2.4.1 SELECT ENTITIES			R														CRU	U	
2.4.2 SELECT PROCESSES	R		R		RU			R											
2.5 PREPARE SCOPE MEMORANDUM	R	R	R	R	R	R		R	R								R	R	
3. UNIT ANALYSIS																			
3.1 DEVELOP INFORMATION VIEWS					R			R									RU	RU	CR
3.2 DEVELOP ACTION DIAGRAMS					R		C	R											
3.3 DEVELOP ATTRIBUTE DESCRIPTIONS																			RU
4. NORMALIZATION																	RU	RU	CU
5. DEVELOP USER VIEWS	R	R	R				RU			C	CU	CU	CU	C	C	C	RU		RU

FIGURE 0-4
LOGICAL MODEL
STEP COMPONENTS

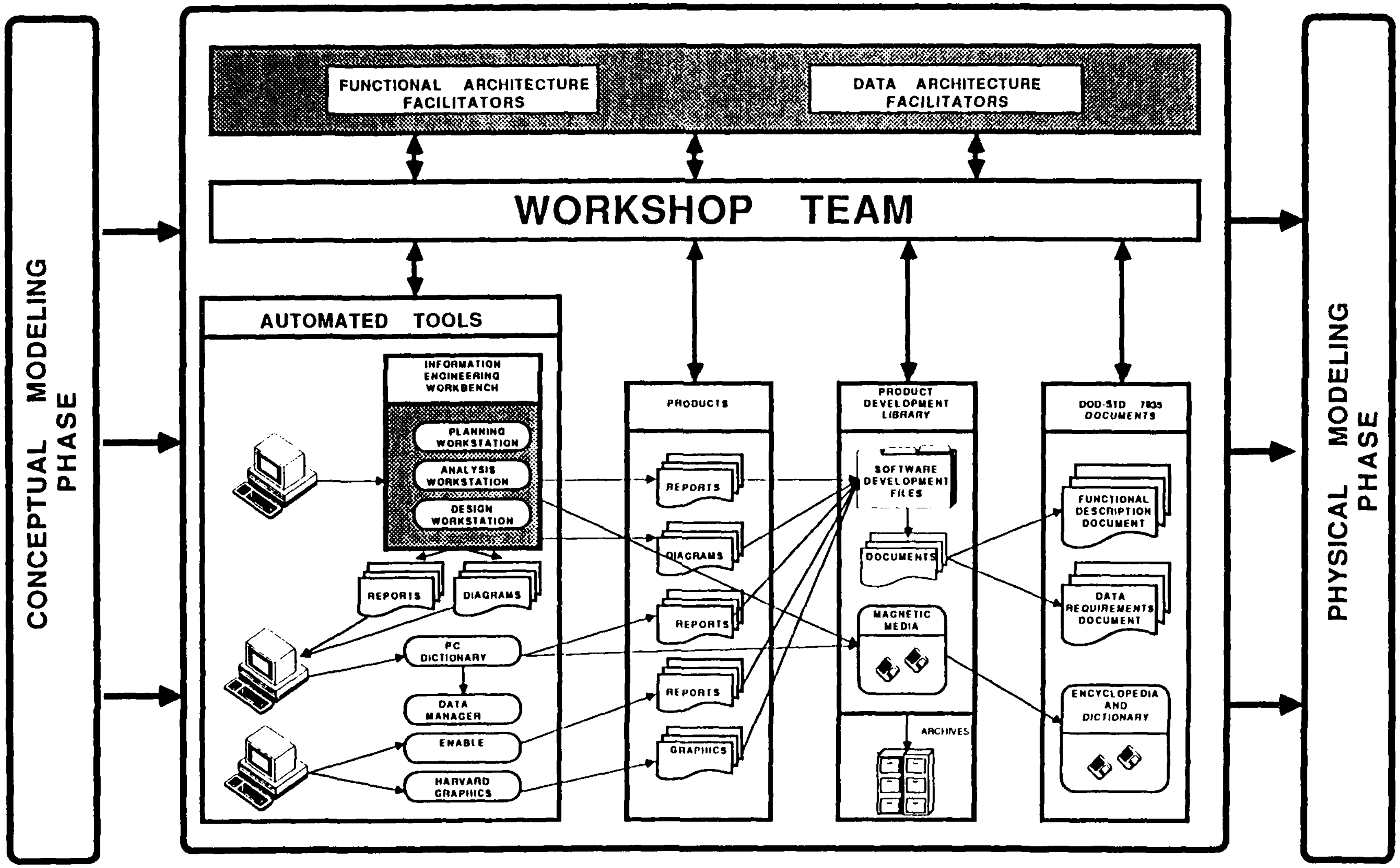


FIGURE 0-5
LOGICAL INFORMATION ARCHITECTURE
DEVELOPMENT PHASE OVERVIEW

Figure 0-5 LOGICAL INFORMATION ARCHITECTURE DEVELOPMENT PHASE OVERVIEW depicts the relationships between the various personnel and components of a logical modeling projects within DLA.

0.2 OBJECTIVES

DLA's approach for Information Engineering has both long-term and short-term objectives. The long-term objectives are:

To standardize and control data through the creation and maintenance of Data Architectures.

To institutionalize the practices of information engineering throughout DLA.

To gradually build, validate, and implement architectures which integrate information systems.

To promote the visibility of information resources as major assets of DLA which require executive management and integration:

To promote and contribute to DOD or, in some cases, federal corporate-shared data bases.

The short-term objectives of DLA's approach for Information Engineering are:

To define, design, and evaluate the Contractor Profile Pilot Study. That study will also help to validate and perfect this approach.

To incorporate and account for current DLA Information System Initiatives (e.g., Immediate Improvement Initiative (I^3), Defense Integrated Data System (DIDS), Defense Automatic Addressing System (DAAS).

To capitalize on existing Information Engineering products, requirements documents, and analyses.

0.3 POTENTIAL BENEFITS

The application of information engineering and of this approach in its completed stage should result in the following benefits to DLA:

Reduction of design and integration errors, as well as disruptive errors in the actual construction of data bases and the applications which use them.

Increased capability to use emerging automated construction and testing techniques, as well as acceleration and simplification of the systems development life cycle.

Assurance of the utility, stability, and integrity of information systems through basing the design of information systems explicitly on DLA's business requirements.

Visible audit trails and the capability to assess proposed changes to information systems through the configuration management of information resources using automated central encyclopedias and data dictionaries.

The capability to capitalize on emerging rapid prototyping tools through structured analysis of DLA's business and information requirements.

Integrated, shareable data.

Reduction in requirements for redesign and reprogramming and, ultimately, systems maintenance through the portability of the Information Engineering products produced with this approach.

0.4 COMMITMENT AND SPONSORSHIP

General. The nature of Information Engineering requires intensive mid-level management and user involvement for up-front development of the conceptual, logical and physical architectures and models that will ultimately satisfy the information requirements of DLA. The functional areas comprising the scope of the workshop may be identified by their involvement in the Conceptual Modeling Workshop which was used as the foundation for the Logical Modeling phase.

Importance. Gaining commitment and sponsorship prior to commencing workshop activities is necessary to ensure full and part time commitment of appropriate manpower to produce timely and quality workshop products; adequate funding to cover supplies, equipment, and travel for the duration of the workshop; and responsiveness to questions from workshop participants during the data collection and validation phases.

Gaining commitment. It is critical to the success of the workshop that all levels of management within DLA be made aware of the benefits and costs of information engineering through briefings and newsletters. Information briefings may be developed and targeted to three distinct audiences: Upper level management, which contributes to the strategic direction and provides overall guidance to the effort; Mid-Level management, which provides highly skilled personnel assets to support the effort; and Users who provide the study team with a detailed understanding of the day-to-day operation of DLA.

The Executive Sponsor. The Executive Sponsor should be high enough in the organization to have authority over all functional areas within the scope of the study. He has the single most important role in ensuring that upper and mid-level manager understand the importance of the project to DLA. He should be provided with a realistic assessment of the benefits and costs of the information engineering approach. His commitment should be assured prior to project start-up activities by providing him with an information briefing which articulates benefits and resource requirements of the effort as well as a detailed, time-phased plan for completion of the project. Once his commitment has been gained, it can be maintained by monthly or quarterly progress briefings, his schedule permitting, for the duration of the project.

The Steering Committee. Once Executive Sponsorship has been gained, a Steering Committee should be formed which is composed of upper-level management from all functional areas within DLA. No functional area should be excluded from the Steering Committee. Traditionally, commitment of the Steering Committee increases as it becomes more aware of the benefits achieved through the information engineering approach. They frequently develop an increased understanding of the integrated teamwork normally taken for granted in accomplishing the missions of a large, complex organization like DLA. The potential benefits of sharing data throughout the agency with resultant increases in economy and efficiency soon become evident. The commitment of the Steering Committee can be maintained through frequent In-Process Reviews (IPRs) in which they play an active role in making decisions concerning the outcome, scope, methodology, standards, and resources employed in the information engineering approach.

0.5 WORKSHOP SCOPE

The workshop scope may be determined by the Steering Committee which takes under advisement the general direction given by the Executive Sponsor and the Steering committee. Using the DLA Information Engineering Approach, the scope may be determined by the functional areas identified for study.

0.6 WORKSHOP OBJECTIVES

It is important that a clear-cut statement of the objectives of the workshop be developed in order to maintain the focus of the workshop participants. In the case of the pilot workshop group, the objectives are:

To develop the Information Architecture at the Logical Level.

To test a variety of previously researched techniques for developing the architectures.

To test a variety of rules, naming conventions, and standards.

To map the products of the Logical Information Architecture to DLA's Enterprise Model and functions, the processes of the BAA, and to the Conceptual Information Architecture.

0.7 TEAM COMPOSITION

The Workshop Leader. The workshop leader must be clearly identified and must be committed to the project, full-time throughout the course of the workshop. Because of the intensity of the project, the leader may delegate some responsibilities of the position to assistant workshop leaders. The workshop leader provides the focal point and resolves day-to-day issues for the workshop group on such matters as scope and level of detail. The workshop leader identifies requirements for additional expertise to augment the knowledge of the workshop group and will ensure that expertise is made available. It is critical to the success of the project, that the workshop leader possess the following characteristics:

An understanding of DLA's Information Engineering Approach.

An in-depth understanding of the CFR and the BAAs and BARs within the scope of the workshop.

An in-depth understanding of the functional areas within the scope of the workshop.

Credibility with the functional community and workshop participants.

Ability to think at both the conceptual and detailed level.

Ability to maintain an objective perspective and not be bound by organizational (turf) issues.

Strong leadership qualities.

The Workshop Facilitator. The role of the workshop facilitator is to provide technical leadership to the workshop group in the development of the information engineering products. The facilitator reinforces the information engineering training at the beginning of each step of the workshop, ensures that each member of the group participates, and provides clarification on all information engineering questions. The workshop facilitator should be dedicated full-time to the workshop throughout the life of the workshop. The workshop facilitator must possess the following characteristics:

An in-depth understanding of DLA's Information Engineering Approach.

Experience as a team member, leader, or participant in an information engineering workshop or study team.

Experience in group facilitation.

An understanding of group dynamics.

Strong leadership qualities.

The Version Controller. The Version Controller keeps the audit trail for the working group. As each interim product is agreed upon by the team and produced, the version controller ensures that the correct

version number and date appears on it and places it into the appropriate version control file. These files are working files that are essential to the group's progress and will be frequently referred to and provide an audit trail when the final products are produced. The Version Controller must possess the following characteristics:

An in-depth understanding of DLA's Information Engineering Approach and the final and interim products of the workshop.

Ability to work at a very detailed level.

Extremely well organized.

The Toolkit Guru. While each team member is trained in the automated tools supporting the project, the toolkit guru assistance when the tools do not appear to be doing what they are supposed to do. The guru must possess the following characteristics:

Intensive training and experience with all aspects of the CASE tool.

Hands-on training and experience with the data dictionary.

Experience as an Enable user.

An understanding of PC-DOS.

The Workshop Group. The workshop group is the heart of this effort. All of the leaders, facilitators, and experts can do nothing without the group's functional experience and expertise. They are constantly challenged to provide details of their day-to-day operations, encapsulate those details at the conceptual level, and break them down again to increasing levels of detail at the logical level. The synergy of a good working group is the key to the success of a project of this nature. The ideal number of full-time team members ranges from seven to twelve, with part-time augmentation when the team is focused on a particular function or data supporting that function. Characteristics of members of a workshop group are:

A broad understanding of DLA.

Expertise in their functional areas.

Training in DLA's Information Engineering Approach.

Training in all automated tools to support the workshop.

Analytical ability.

Ability to grasp new concepts.

Understanding of reference documents.

Ability to work effectively in a group environment.

Ability to understand and analyze the varying levels of functions, processes, information, and data needed by different activities and different management levels.

Good listening skills.

Credibility.

Established Points of Contact within different division of their functional organizations, both at headquarters staff and in the field activities.

DLA's Architecture Team plays an important role in resolving technical issues and questions relative to DLA Information Engineering approach on a day-to-day basis. The team is available to ensure that products produced are integratable into the overall conceptual models and meet the standards established by DLA. The Architecture Team discreetly observes the workshop sessions and meets with the workshop group formally on weekly basis to review their progress and address their issues or concerns.

0.8 EDUCATION AND TRAINING

In addition to detailed training required by every workshop participant and the Architecture Team, the Executive Sponsor and Principal Staff Elements should receive a high-level overview of the objectives, methodological approach, resources required and benefits of DLA's Information Engineering Approach. Additional information briefings should be provided to organizations supporting the effort with their functional and technical experts.

0.9 PLAN OF ACTION

A detailed, time-phased Plan of Action should be developed prior to workshop startup. If these procedures are followed carefully, the logical level activities should last from eight to ten weeks. The plan should include:

The scope and objectives of the study effort.

The organizations participating in the workshop.

The resources required for conducting the workshop.

The methodology steps to be taken.

The planned beginning and ending dates for each step.

The products which will result from each step.

The anticipated date the products will be completed.

In-Process Review dates.

Requirements for a Final Report.

0.10 LOGISTICAL REQUIREMENTS

The workshop group requires a large, well-lighted room with an adequate power supply to accommodate the equipment delineated below. The workshop room should be available for the duration of the study so that the team members feels it is their "home" until the study is completed.

Automation Support. Listed below is the ideal automation support for workshop activities.

Three microcomputers with 40 megabytes of memory.

Two microcomputers should be equipped with mice and should have KnowledgeWare's Information Engineering Workbench (IEW) and Enable installed.

The third microcomputer should have PC Dictionary and Enable installed.

One Laser Printer

Furniture and Equipment. All furniture and equipment should be on hand and set up prior to the arrival of the workshop group. Following is a suggested list of furniture and equipment:

Enough tables to seat two full-time workshop participants to a table.

Two - three computer tables (depending on the number of microcomputers.

One bookcase for reference materials.

Enough comfortable rotary chairs to accommodate all working group members plus four to six chairs for observers.

Overhead projector and screen.

One conference copier.

One PC screen projection device.

One easel with butcher paper.

Coffee pot and table.

One telephone to used for out-going calls only.

Supplies. Following is a list of supplies that should be available for workshop use:

Magic markers for butcher paper and conference copier.

Overhead blank transparencies.

Overhead transparency markers/pens.

Slides from DLA's Information Engineering training class.

Writing tablets.

Pencils and Pens.

Large three-ring binders.

Name tags.

Note cards (3"x5").

Layout of the Workshop Room. All equipment should be set up and the room arranged prior to the arrival of the workshop group. Tables should be arranged in a U-Shape in order for the working group to maintain eye contact with one another.

0.11 REFERENCE MATERIALS

A library of reference materials should be created and maintained in the workshop.

DLA's Information Engineering Approach paper (1 per team member).

Any previously generated conceptual and logical level products (1 set per team member).

Business Area Analyses for the business areas being modeled and integrated (1 set per team member).

Business Area Requirements Document (1 per team member).

DLA's Organization and Functions Manual.

DLA's Strategic Plan.

Conceptual Functional Requirements Document (1 per team member).

JCS Pub 1.

Dictionary and Thesaurus.

0.12 STARTUP ACTIVITIES

0.12.1 ADMINISTRATIVE ANNOUNCEMENTS

The workshop group should be welcomed by the workshop leader, who will introduce himself/herself, and provide information concerning badges, parking, security, location of nearby restaurants and restrooms and how telephone messages will be disseminated to the group.

0.12.2 PROJECT OVERVIEW

The Project Manager should provide the working group with an overview briefing of the project and a brief history of relevant work accomplished to date.

0.12.3 TEAM BUILDING

At the completion of the project overview, the workshop should be closed to all visitors. A team building exercise is recommended at this point. It is used to set the tone for the workshop and acquaint the workshop participants with each other.

Introductions. The facilitator provides each member of the workshop group with a 3"x5" card and asks each team to provide their names, a description of their jobs, where they work, one thing they really like about themselves, what they enjoy doing in their spare time, and one thing that really irritates them. After the team members have filled out their cards, each one discusses the topics listed on their card. This exercise is usually begun by the workshop facilitator, who is likely to be the most comfortable with a self-disclosure exercise. The facilitator then asks the person sitting next to him/her and the workshop's attention is focused on each team member in turn. This simple step provides the members of the group with an understanding and appreciation of the variety of personalities in the workshop. It may also reduce the possibility of one workshop member inadvertently offending another.

Expectations. The facilitator stands in front of the easel, which is centered in front of the workshop group and asks them to list their individual expectations of the workshop one at a time, in turn. The facilitator lists each expectation on the butcher paper, until each of the expectations have been listed. Usually, responses will be exhausted after three or four times around the room. The pages of butcher paper will be taped to the wall. This exercise is useful because it focuses the working group's attention to the work at hand. The list of expectations stays on the way until the workshop has completed its work. In later stages of the workshop, groups of this nature may become tired, lose their focus, or become discouraged. It is helpful to remind the group of their initial expectations to regain enthusiasm and momentum.

Workshop Rules. It is important to establish rules the group can work within. Again, the workshop group sets its own rules that will apply for the duration of the workshop. The rules are listed on butcher paper by the facilitator in the same manner as expectations were listed. Initially, the facilitator or team leader reminds the team of the rules, but eventually as the group matures, it becomes self-regulating and the

group members remind each other when a rule is being violated. A partial list of good rules follows:

Everyone participates.

Listen to what is being said - do not focus on your rebuttal.

Agree to disagree without rancor.

Start on time.

One conversation at a time.

No smoking.

Hours of operation.

Consensus means you can "live with the group decision".

No question is dumb.

Five minute Rule. If the discussion begins to get too philosophical, the facilitator may invoke the five minute rule, which means the discussion must end in five minutes or the subject will wind up in the "unresolved issue" list.

0.12.4 REFERENCE MATERIAL REVIEW

Each member of the working group is briefed on all reference materials and their use. Individual copies of reference materials such as BAAs and CFR are provided to each team member. Depending on the volume of material to be reviewed, this step takes 1-1/2 to 2 days.

1 SCOPING

Purpose - Identify the subset of the Conceptual Information Architecture to be analyzed during the Logical Information Architecture Development Phase of a System Development Project.

1.1 DEFINE SCOPING CRITERIA

Figure 1.1-1 Step Overview
Figure 1.1-2 Step Products
Figure 1.1-3 Step Components

1.1.1 PURPOSE

1.1.2 COMPONENTS

1.1.2.1 Objective
1.1.2.2 Subject Area
1.1.2.3 Information Requirements

1.1.3 INPUT PRODUCTS

1.1.3.1 Enterprise Model Objective List
1.1.3.2 Enterprise Model Objective Report
1.1.3.3 Enterprise Model Information Requirements List
1.1.3.4 Enterprise Model Information Requirements Report
1.1.3.5 References

1.1.4 GENERAL PROCEDURES

1.1.4.1 Determine Subject Area Information Requirements
1.1.4.2 Determine Subject Area Objective
1.1.4.3 Prepare Memo for Management Approval

1.1.5 OUTPUT PRODUCTS

1.1.5.1 Subject Area Objective List
1.1.5.2 Subject Area Objective Report
1.1.5.3 Subject Area Information Requirements List
1.1.5.4 Subject Area Information Requirements Report

1.1.6 RULES

1.1.6.1 Subject Area Objective
1.1.6.2 Subject Area Information Requirements

1.1.7 EXAMPLES

Figure 1.1.7-1 Enterprise Model Objectives List
Figure 1.1.7-2 Enterprise Model Objectives Report
Figure 1.1.7-3 Enterprise Model Information Requirements List
Figure 1.1.7-4 Enterprise Model Information Requirements Report
Figure 1.1.7-5 Subject Area Objectives List
Figure 1.1.7-6 Subject Area Objectives Report
Figure 1.1.7-7 Subject Area Information Requirements List
Figure 1.1.7-8 Subject Area Information Requirements Report

1.1 Appendix B - Detailed PC Dictionary Procedures

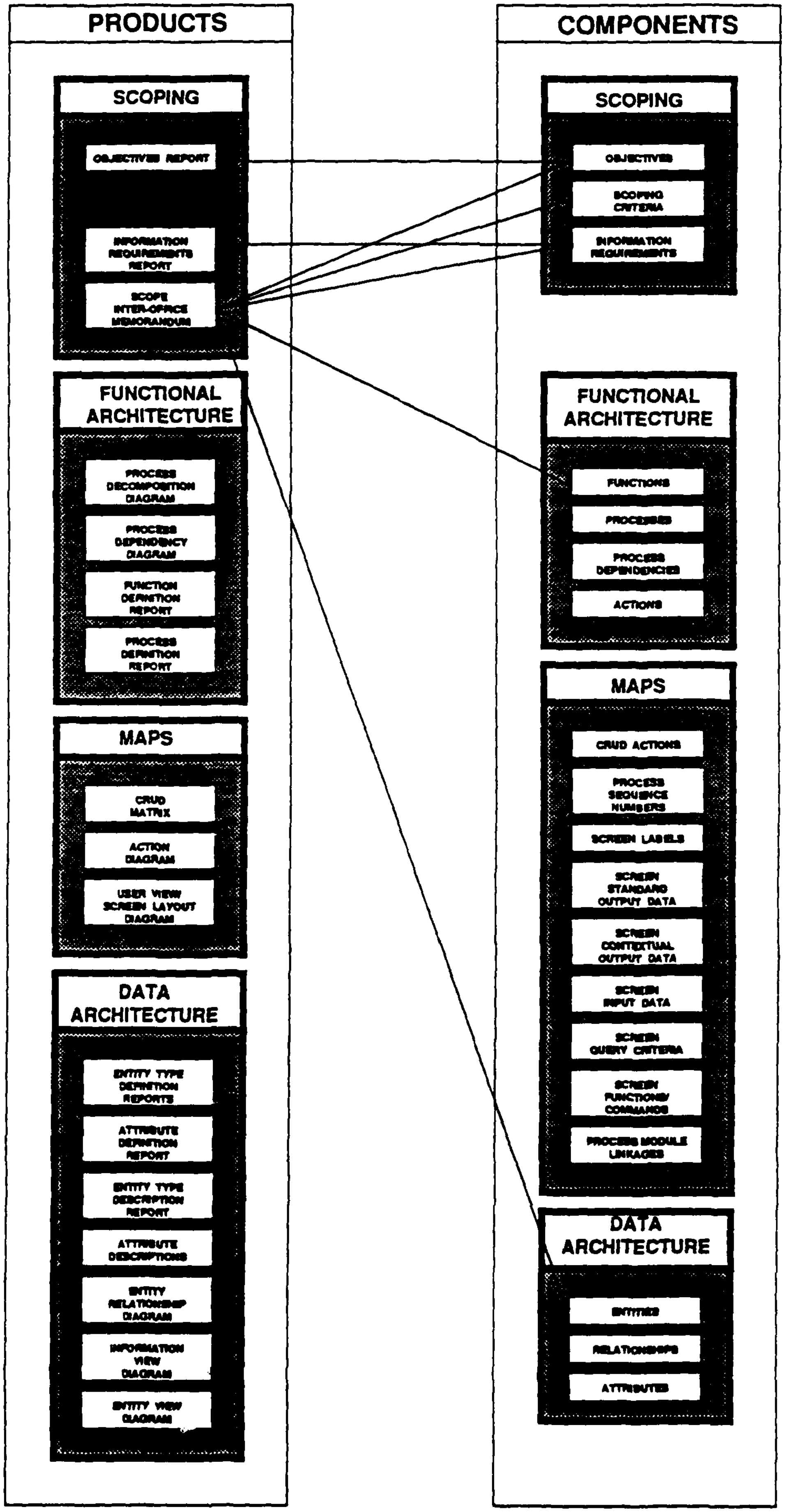


FIGURE 1.1-1
STEP OVERVIEW

PRODUCTS / 1.1 DEFINE SCOPING CRITERIA STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. DETERMINE SUBJECT AREA INFORMATION REQUIREMENTS		CR																
2. DETERMINE SUBJECT AREA OBJECTIVE	CR																	
3. PREPARE MEMO FOR MANAGEMENT APPROVAL			C															

FIGURE 1.1-2
STEP PRODUCTS

COMPONENTS / 1.1 DEFINE SCOPING CRITERIA STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. DETERMINE SUBJECT AREA INFORMATION REQUIREMENTS		C	CR																
2. DETERMINE SUBJECT AREA OBJECTIVES	CR	C																	
3. PREPARE MEMO FOR MANAGEMENT APPROVAL	R		R																

FIGURE 1.1-3
STEP COMPONENTS

1.1 DEFINE SCOPING CRITERIA

1.1.1 PURPOSE

To ascertain and document the criteria to be used when determining or reviewing the scope of a System Development Project's Logical Information Architecture Development Phase.

For a Subject Area (project), the criteria are Information Requirements and an Objective.

1.1.2 COMPONENTS

1.1.2.1 Objective

"Something aimed at or striven for. Objectives are ends, not means. They are definable, attainable and usually quantifiable. They have a mid-range time frame (5 to 10 years). Objectives are the second highest level in the DLA hierarchy of goals, objectives, strategies, and tasks." Extracted from the DLA 1988 Strategic Plan, Volume Three.

For a Subject Area (System Developement Project), the project's objective identifies the Information Requirements of strategic value to the Enterprise.

1.1.2.2 Subject Area

A selected set of Functions, Processes, Entities, and Relationships. The selection is based on the Subject Area's Information Requirements and Objective.

1.1.2.3 Information Requirements

Information requirements classify information in terms of usage to meet business requirements. A Subject Area, at the highest level of the Global Architecture, has Information Requirements. One of these Information Requirements must be called out in the Objective for the Subject Area. This single Information Requirement has strategic value to the Enterprise. The other Information Requirements are supporting classes of information. Without these supporting classes, the data represented by the Objective's Information Requirement would have little meaning and thus would lose its value.

1.1.3 INPUT PRODUCTS

1.1.3.1 Enterprise Model Objective List

1.1.3.2 Enterprise Model Objective Report

1.1.3.3 Enterprise Model Information Requirements List

1.1.3.4 Enterprise Model Information Requirements Report

1.1.3.5 References

Conceptual Functional Requirements (CFR) Document

MENS or Management Requirement Document for the Subject Area

Any coordinated DLA documentation about the Subject Area

1.1.4 GENERAL PROCEDURES

1.1.4.1 Determine Subject Area Information Requirements

Identify the Information Requirements for the Subject Area. These categories of information should identify the types of data to be contained in the Subject Area. First examine the Enterprise Model's list of Information Requirements for the Subject Area. Identify those that represent the highest level of Information Requirement for the Subject Area. Examine all Information Requirements for the Subject Area to ascertain any missing high level requirements. Add these Information Requiements to the Enterprise Model.

1.1.4.2 Determine Subject Area Objective

Identify the Enterprise's Objective for the Subject Area. The objective must identify the single Information Requirement driving the need for the Subject Area. All other high level Subject Area Information Requirements represent supporting information. First ascertain if there is an objective related to the Subject Area in the Enterprise Model.

If there is an Objective for the Subject Area, make sure it identifies the single Information Requirement driving the need for the Subject Area. If it does not, the Objective needs to be changed to include the Information Requirement. Research will be required to determine the Information Requirement for the Objective. The research will examine documents like the CFR or any other coordinated document that identifies management's direction for the project.

If there is not an Objective for the Subject Area, define one. Research will be required to determine the Information Requirement, see the above paragraph. Add the new Objective to the Enterprise Model.

1.1.4.3 Prepare Memo for Management Approval

A formal IOM is required to document and distribute the project team's recommendation of scoping criteria for review and approval. It is management's perogative to review and critique the Subject Area's Objective and Information Requirements to assure the eventual system properly reflect management's requirements. The memorandum also formally sets the proper expectation for what the system will provide. The project team is expected to base the scope of the system on the scoping criteria (Objective and Information Requirements) documented in the memorandum. The risk is management may want changes. If so, rework may be required. To minimize this risk, a deadline should be set for management's approval.

1.1.5 OUTPUT PRODUCTS

1.1.5.1 Subject Area Objective List

1.1.5.2 Subject Area Objective Report

1.1.5.3 Subject Area Information Requirements List

1.1.5.4 Subject Area Information Requirements Report

1.1.6 RULES

1.1.6.1 Subject Area Objective

A Subject Area must have an Objective that states the single Information Requirement that is driving the Enterprise's need for the Subject Area.

1.1.6.2 Subject Area Information Requirements

At the highest level, a Subject Area may have several Information Requirements.

1.1.7 EXAMPLES

DEFENSE LOGISTICS AGENCY

07/02/90 List Query

Member Type	Member Name
OBJECTIVE	OB-PROV-CNTRC-PRFMC-DATA
	OBJ-00001-OBTN-SFCNT-ESN-MTL
	OBJ-00002-IMPRV-KNLDG-CUST-RQ
	OBJ-00003-ACHV-WPN-SYS-SPT-CAPBL
	OBJ-00004-CUST-RQ-LOW-COST
	OBJ-00006-MAX-REUTL-TRFR-PRPTY
	OBJ-00007-PRCLD-SNSTV-ITEM
	OBJ-00008-ACHV-MODRN-SYS-PRCDR
	OBJ-00009-ACHV-RQ-LEVEL-PRTCP
	OBJ-00010-ACHV-SYS-PRCDR-SPT-RQ
	OBJ-00011-IMPRV-TRNSP-MGT
	OBJ-00012-REDC-IMPRV-DISTR-SYS
	OBJ-00013-OPTMZ-COST-MINM-TRFR
	OBJ-00014-ACHV-HI-EMPL-MOTVN
	OBJ-00015-IMPRV-PRSNL-MGT-AUTO
	OBJ-00016-ACHV-PRSNL-MGT-EXPAN
	OBJ-00017-MAX-OPG-INFO-MGT-RESRC
	OBJ-00018-MAX-DATA-INTEG-SHR
	OBJ-00019-REDC-ACQR-DEVLP-SYS-TM
	OBJ-00020-ACHV-UNDRS-COST-BNFIT
	OBJ-00021-EXPAN-ELEC-INTCG-INTEG
	OBJ-00022-MAX-EFCNT-INFO-OPRN
	OBJ-00023-ACHV-CLR-ORG-MGMT-SYS
	OBJ-00024-ACHV-DVLP-REFN-PROCS
	OBJ-00025-ACHV-OPTM-STRUC
	OBJ-00026-ACHV-RESRC-PROVD-SPT
	OBJ-00027-ALCTN-RESRC
	OBJ-00028-ACHV-VISBL-RESRC
	OBJ-00029-ACHV-ZERO-LAG-TM
	OBJ-00030-ACHV-MINM-FACIL-COST
	OBJ-00031-ACHV-EFCNT-FACIL-UTIL
	OBJ-00032-ACHV-OPTM-TECH-OPRN

32 Member(s) Defined

Figure 1.1.7-1 Enterprise Model Objectives List

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

Member Type

Member Name Attribute Name & Contents

Member Type / Member Name	Attribute Name & Contents
OBJECTIVE	
OBJ-00001-OBTN-SFCNT-ESN-MTL	CATALOGUE
	DEFINITION
	Obtain sufficient essential materiel to meet readiness and sustainability requirements for the full spectrum of operating scenarios.
	ENTRY-CONTENT-APPROVER-ORG
	FULL-NAME
	Obtain Sufficient Essential Materiel
	SOURCE
	DLA 1988 Strategic Plan, page 32

Figure 1.1.7-2 Enterprise Model Objectives Report

Member Type	Member Name
INFORMATION-REQUIREMENT	IR-0001
	IR-0002
	IR-0003
	IR-0004
	IR-0005
	IR-0006
	IR-0007
	IR-0008
	IR-0009
	IR-0010
	IR-0011
	IR-0012
	IR-0013
	IR-0014
	IR-0015
	IR-0016
	IR-0017
	IR-0018
	IR-0019
	IR-0020
	IR-0021
	IR-0022
	IR-0023
	IR-0024
	IR-0025
	IR-0026
	IR-0027
	IR-0028
	IR-0029
	IR-0030
	IR-0031
	IR-0032
	IR-0033
	IR-0034
	IR-0035
	IR-0036
	IR-0037
	IR-0038
	IR-0039
	IR-0040
	IR-0041
	IR-0042
	IR-0043
	IR-0044
	IR-0045
	IR-0046
	IR-0047
	IR-0048
	IR-0049
	IR-BID-PROPL
	IR-CNTRC-CBLTY

DEFENSE LOGISTICS AGENCY
07/02/90 List Query

Member Type	Member Name
	IR-CNTRC-CHARC
	IR-CNTRC-CONTR-PRFMC
	IR-CONTR-REQMT
	IR-GOVT-PRFMC
	IR-ITEM

56 Member(s) Defined

Figure 1.1.7-3 Enterprise Model Information Requirements List

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT	
IR-0001	CATALOGUE CONTRACTOR PROFILE DEFINITION Contractors should track subcontractors performance. ENTRY-CONTENT-APPROVER-ORG FULL-NAME SOURCE CONTAINS

Figure 1.1.7-4 Enterprise Model Information Requirements Report

07/02/90

DEFENSE LOGISTICS AGENCY
Catalogue Query
The following members satisfy this condition...
OBJECTIVE AND CONTRACTOR PROFILE.

Member Name	Member Type
OB-PROV-CNTRC-PRFMC-DATA	OBJECTIVE

1 Member(s) Satisfying Catalogue Query

Figure 1.1.7-5 Subject Area Objectives List

Member Type Member Name	Attribute Name & Contents
OBJECTIVE	
OB-PROV-CNTRC-PRFMC-DATA	CATALOGUE CONTRACTOR PROFILE OBJECTIVE DEFINITION Provide contractor performance data in order to award contracts to the best performing contractors. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Provide Contractor Performance Data SOURCE Team member knowledge

Figure 1.1.7-6 Subject Area Objectives Report

07/02/90

DEFENSE LOGISTICS AGENCY
Catalogue Query
The following members satisfy this condition...
INFORMATION REQUIREMENT AND CONTRACTOR PROFILE.

Member Name	Member Type
IR-CNTRC-CBLTY	INFORMATION-REQUIREMENT
IR-CNTRC-CHARC	INFORMATION-REQUIREMENT
IR-CNTRC-CONTR-PRFMC	INFORMATION-REQUIREMENT

3 Member(s) Satisfying Catalogue Query

Figure 1.1.7-7 Subject Area Information Requirements List

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT IR-CNTRC-CBLTY	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which identifies and describes a contractor's ability and capacity to provide a service or a product. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor Capability SOURCE Team member knowledge CONTAINS EN-ITEM EN-LEGAL-ENTY EN-OFFER IR-0001 IR-0002 IR-0010 IR-0016 IR-0021 IR-0022 IR-0024 IR-0041 IR-0045 IR-0049
INFORMATION-REQUIREMENT IR-CNTRC-CHARC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which identifies and describes a given contractor's resources and their locations. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor Characteristics

Member Type Member Name	Attribute Name & Contents
	SOURCE
	Team member knowledge
	CONTAINS
	EN-ITEM
	EN-LEGAL-ENTY
	EN-OFFER
	IR-0021
	IR-0022

Figure 1.1.7-8 Subject Area Information Requirements Report

1.1 APPENDIX A - DETAILED IEW PROCEDURES

1.1 DEFINE SCOPING CRITERIA

There are no IEW procedures for this section.

1.1 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

1.1 DEFINE SCOPING CRITERIA

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

1.1.1 PURPOSE

The purpose in these PC DICTIONARY detailed procedures is to explain how to capture and report the information that is gathered while defining the scoping criteria.

1.1.2 COMPONENTS/TERMS

1.1.3 INPUT PRODUCTS

1.1.3.1 Enterprise Model Objectives List

(Get report of Objectives)

1.1.3.1.1 Select MEMBER DEFINITION from REPORT MENU.

1.1.3.1.2 Select all members that begin with the objective member type prefix.

1.1.3.1.3 Check report destination [ALT-F10].

1.1.3.1.4 Start report [F10].

1.1.3.2 Enterprise Model Information Requirements List
(Get report of Information Requirements)

1.1.3.1.1 Select MEMBER DEFINITION from REPORT MENU.

1.1.3.1.2 Select all members that begin with the information requirement prefix.

1.1.3.1.3 Check report destination [ALT-F10].

1.1.3.1.4 Start report [F10].

1.1.4 GENERAL PROCEDURES

1.1.4.1 Determine Subject Area Information Requirements
(If the needed Information Requirement(s) already exists, then...)

1.1.4.1.1 Edit each Information Requirement that has been selected for the Subject Area.

1.1.4.1.2 Edit the 'CATALOG' attribute.

1.1.4.1.3 Add the CATALOG 'CONTRACTOR PROFILE'.

1.1.4.1.4 Add another CATALOG 'INFORMATION REQUIREMENT'.

1.1.4.1.5 Save CATALOGs.

1.1.4.1.6 Edit any other attributes, as needed.

1.1.4.1.7 Save the Information Requirement.
(If the Information Requirement is new, then...)

1.1.4.1.8 Add each new Information Requirement that has been selected for the Subject Area.

1.1.4.1.9 Edit the CATALOG attribute.

1.1.4.1.10 Add the CATALOG 'CONTRACTOR PROFILE'.

1.1.4.1.11 Add another CATALOG 'INFORMATION REQUIREMENT'.

1.1.4.1.12 Save CATALOGs.

1.1.4.1.13 Edit any other attributes, as needed.

1.1.4.1.14 Save Information Requirement.

1.1.4.2 Determine Subject Area Objective
(If an Objective already exists, then...)

1.1.4.2.1 Edit each Objective that has been selected for the Subject Area.

1.1.4.2.2 Edit the CATALOG attribute.

1.1.4.2.3 Add the CATALOG 'CONTRACTOR PROFILE'.

1.1.4.2.4 Add another CATALOG 'OBJECTIVE', if not already added.

1.1.4.2.5 Save CATALOGs.

1.1.4.2.6 Edit any other attributes, as needed.

1.1.4.2.7 Save Objective.
(If the Objective is new, then...)

1.1.4.2.8 Add the new Objective that has been selected for the Subject Area.

1.1.4.2.9 Edit the CATALOG attribute.

1.1.4.2.10 Add the CATALOG 'CONTRACTOR PROFILE'.

1.1.4.2.11 Add another CATALOG 'OBJECTIVE'.

1.1.4.2.12 Save CATALOGs.

1.1.4.2.13 Edit DEFINITION.

1.1.4.2.14 Provide meaningful definitions for the objective.

1.1.4.2.15 Save DEFINITION.

1.1.4.2.16 Edit any other attributes, as needed.

1.1.4.2.17 Save Objective.

1.1.5 OUTPUT PRODUCTS

1.1.5.1 Subject Area Objective Reports
(Get list of Objective that was identified for the Subject Area)

1.1.5.1.1 Select CATALOGUE from QUERY MENU.

1.1.5.1.2 Select query logic, EQUAL.

1.1.5.1.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].

1.1.5.1.4 Select query logic, EQUAL.

1.1.5.1.5 Enter catalogue name, OBJECTIVE, or select from look up list [F2].

1.1.5.1.6 Check report destination [ALT-F10].

1.1.5.1.7 Start query [F10].
(Get report of Objective)

1.1.5.1.8 Select MEMBER DEFINITION from REPORT MENU.

1.1.5.1.9 Select all member(s) that were on the previous Catalog Query list.

1.1.5.1.10 Check report destination [ALT-F10].

1.1.5.1.11 Start report [F10].

1.1.5.2 Subject Area Information Requirements Reports
(Get list of Information Requirements that were identified for the Subject Area)

1.1.5.2.1 Select CATALOGUE from QUERY MENU.

1.1.5.2.2 Select query logic, EQUAL.

1.1.5.2.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].

1.1.5.2.4 Select query logic, EQUAL.

1.1.5.2.5 Enter catalogue name, INFORMATION REQUIREMENT, or select from look up list [F2].

1.1.5.2.6 Check report destination [ALT-F10].

1.1.5.2.7 Start query [F10].
(Get report of Information Requirements)

1.1.5.2.8 Select MEMBER DEFINITION from REPORT MENU.

1.1.5.2.9 Select all member(s) that were on the previous Catalog Query list.

1.1.5.2.10 Check report destination [ALT-F10].

1.1.5.2.11 Start report [F10].

1.2 SELECT CONCEPTUAL ENTITIES

Figure 1.2-1 Step Overview
Figure 1.2-2 Step Products
Figure 1.2-3 Step Components

1.2.1 PURPOSE

1.2.2.1 Entity Type
1.2.2.2 Entity
1.2.2.3 Conceptual Entity Type
1.2.2.4 Information Requirement

1.2.3 INPUT PRODUCTS

1.2.3.1 CDA Entity Relationship Diagram (ERD)
1.2.3.2 CDA Entity Type List
1.2.3.3 CDA Entity Type Report
1.2.3.4 Subject Area Information Requirements Report

1.2.4 GENERAL PROCEDURES

1.2.4.1 Review CDA Entities
1.2.4.2 Identify Subject Area Entity Types

1.2.5 OUTPUT PRODUCTS

1.2.5.1 Subject Area ERDS
1.2.5.2 Subject Area Entity Type List
1.2.5.3 Subject Area Entity Type Report

1.2.6 RULES

1.2.6.1 Adherence to scoping criteria

1.2.7 EXAMPLES

Figure 1.2.7-1 CDA Entity Relationship Diagram (ERD)
Figure 1.2.7-2 CDA Entity Type List
Figure 1.2.7-3 CDA Entity Type Report
Figure 1.2.7-4 Subject Area Information Requirements Report
Figure 1.2.7-5 Subject Area ERDS
Figure 1.2.7-6 Subject Area Entity Type List
Figure 1.2.7-7 Subject Area Entity Type Report

1.2 Appendix A - Detailed IEW Procedures
1.2 Appendix B - Detailed PC Dictionary Procedures

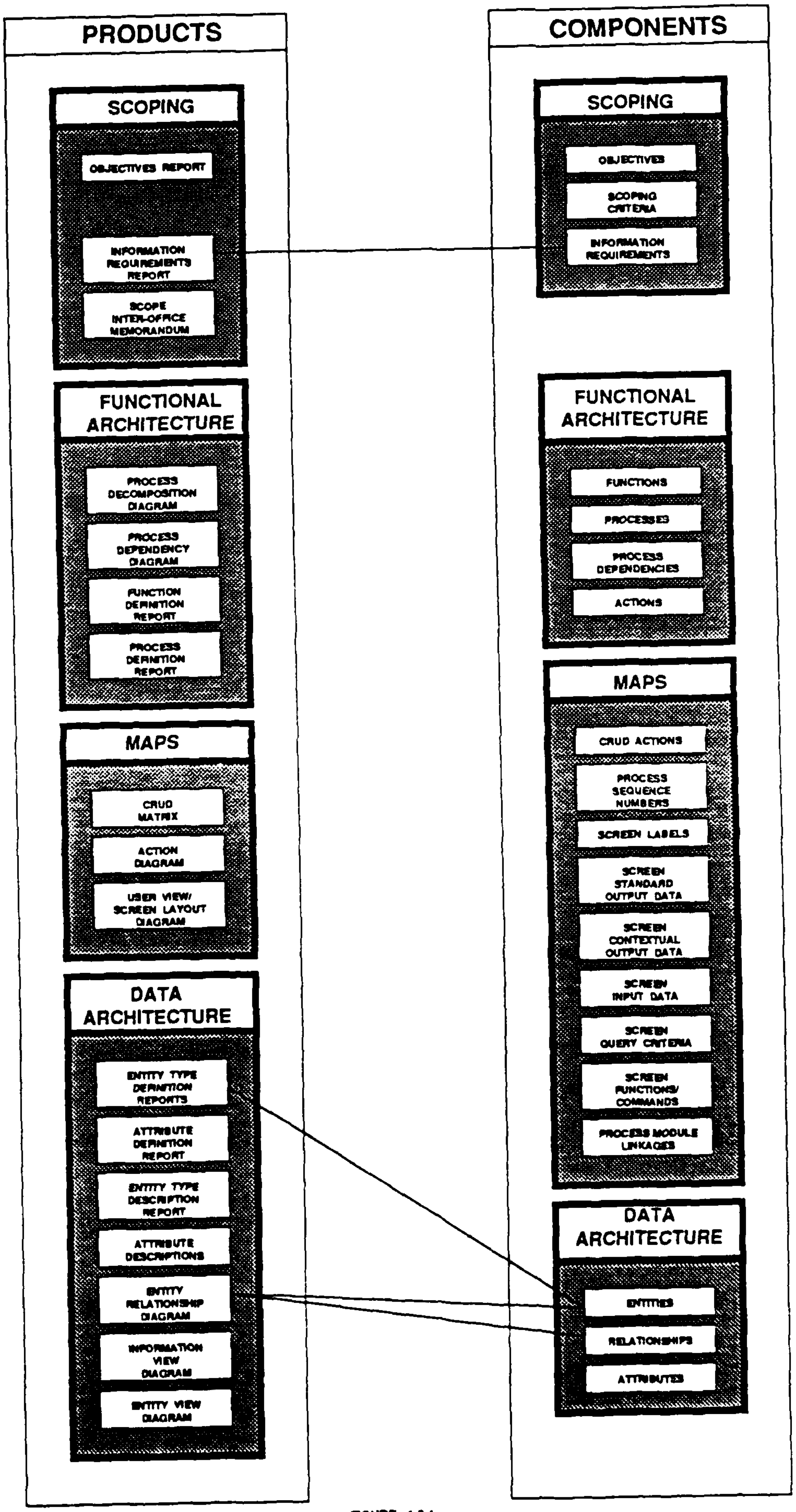


FIGURE 1.2-1
STEP OVERVIEW

1.2 SELECT CONCEPTUAL ENTITIES — STEPS / PRODUCTS	SCOPING: OBJECTIVES REPORT	SCOPING: INFORMATION REQUIREMENTS REPORT	SCOPING: SCOPE INTER-OFFICE MEMORANDUM	SCOPING:	FUNCTIONAL ARCHITECTURE: PROCESS DECOMPOSITION DIAGRAM	FUNCTIONAL ARCHITECTURE: PROCESS DEPENDENCY DIAGRAM	FUNCTIONAL ARCHITECTURE: FUNCTIO N DEFINITION REPORT	FUNCTIONAL ARCHITECTURE: PROCESS DEFINITION REPORT	MAPS: CRUD MATRIX	MAPS: ACTION DIAGRAM	MAPS: USER VIEW/ SCREEN LAYOUT DIAGRAM	DATA ARCHITECTURE: ENTITY TYPE DEFINITION REPORTS	DATA ARCHITECTURE: ATTRIBUTE DEFINITIO N REPORT	DATA ARCHITECTURE: ENTITY TYP E DESCRIPTION REPORT	DATA ARCHITECTURE: ATTRIBUTE DESCRIPTIONS	DATA ARCHITECTURE: ENTITY RELATIONSHIP DIAGRAM	DATA ARCHITECTURE: INFORMATIO N VIEW DIAGRAM	DATA ARCHITECTURE: ENTITY VIEW DIAGRAM
1. REVIEW CDA ENTITIES												R				R		
2. IDENTIFY SUBJECT AREA ENTITY TYPES		R										U						

FIGURE 1.2-2
STEP PRODUCTS

COMPONENTS / 1.2 SELECT CONCEPTUAL ENTITIES STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW CDA ENTITIES																	R	R	
2. IDENTIFY SUBJECT AREA ENTITY TYPES			R														U	U	

FIGURE 1.2-3
STEP COMPONENTS

1.2 SELECT CONCEPTUAL ENTITIES

1.2.1 PURPOSE

The purpose of this one-time step is to choose the entity types from the Conceptual Data Architecture (CDA) that pertain to the Subject Area being analyzed, providing a starting point for further analysis. In a later step, these selected entity types will be fully attributed and all relationships between the selected entity types will be identified. Relationships from the selected (in-scope) entity types to the non-selected (out-of-scope) entity types will also be identified to show the connection to other subject areas.

1.2.2 COMPONENT/TERMS

1.2.2.1 Entity Type

The collection of all the entities to which a specific definition, common attributes and relationships apply.

1.2.2.2 Entity

An Entity is a person, place, thing, concept, or event about which the Enterprise requires information. It is also called entity instance or entity occurrence.

1.2.2.3 Conceptual Entity Type

Any entity type contained in the Conceptual Data Architecture (CDA). They each represent fundamental and broad classifications of Entities.

1.2.2.4 Information Requirement

1.2.3 INPUT PRODUCTS

1.2.3.1 CDA Entity Relationship Diagram (ERD) (Figure 1.2.7-1)

This diagram contains all the entity types that were identified in the CDA.

1.2.3.2 CDA Entity Type List (Figure 1.2.7-2)

This list will contain the entity types from the CDA.

1.2.3.3 CDA Entity Type Report (Figure 1.2.7-3)

This report describes the entity types from the CDA.

1.2.3.4 Subject Area Information Requirements Report (Figure 1.2.7-4)

This report will define the Subject Area Information Requirements as identified in 1.1 Define Scoping Criteria.

1.2.4 GENERAL PROCEDURES

1.2.4.1 Review CDA Entities

Study the definitions of all of the conceptual entity types. While viewing the ERD, understand that the relationships between the Conceptual entity types are place holders for further development.

1.2.4.2 Identify Subject Area Entity Types

Compare the definitions of the Conceptual entity types with the Subject Area Information Requirements to determine which entity types from the CDA are needed to satisfy the Information Requirements. Edit entity type definitions as needed. Document which entity types are within the Subject Area. This is done through the cataloging feature of the dictionary.

1.2.4.3 Review Subject Area Entity Types

Review Subject Area entity type definitions for completeness and accuracy while making sure these Entity types pertain to the Subject Area. Modify the Entity types and/or the diagram, as needed.

1.2.5 OUTPUT PRODUCTS

1.2.5.1 Subject Area ERDs (Figure 1.2.7-5)

Each of these ERDS will only show one entity type that is within scope with its existing relationships to other Entity types.

1.2.5.2 Subject Area Entity Type List (Figure 1.2.7-6)

This list will contain the entity types that have been selected for the Subject Area being analyzed.

1.2.5.3 Subject Area Entity Type Report (Figure 1.2.7-7)

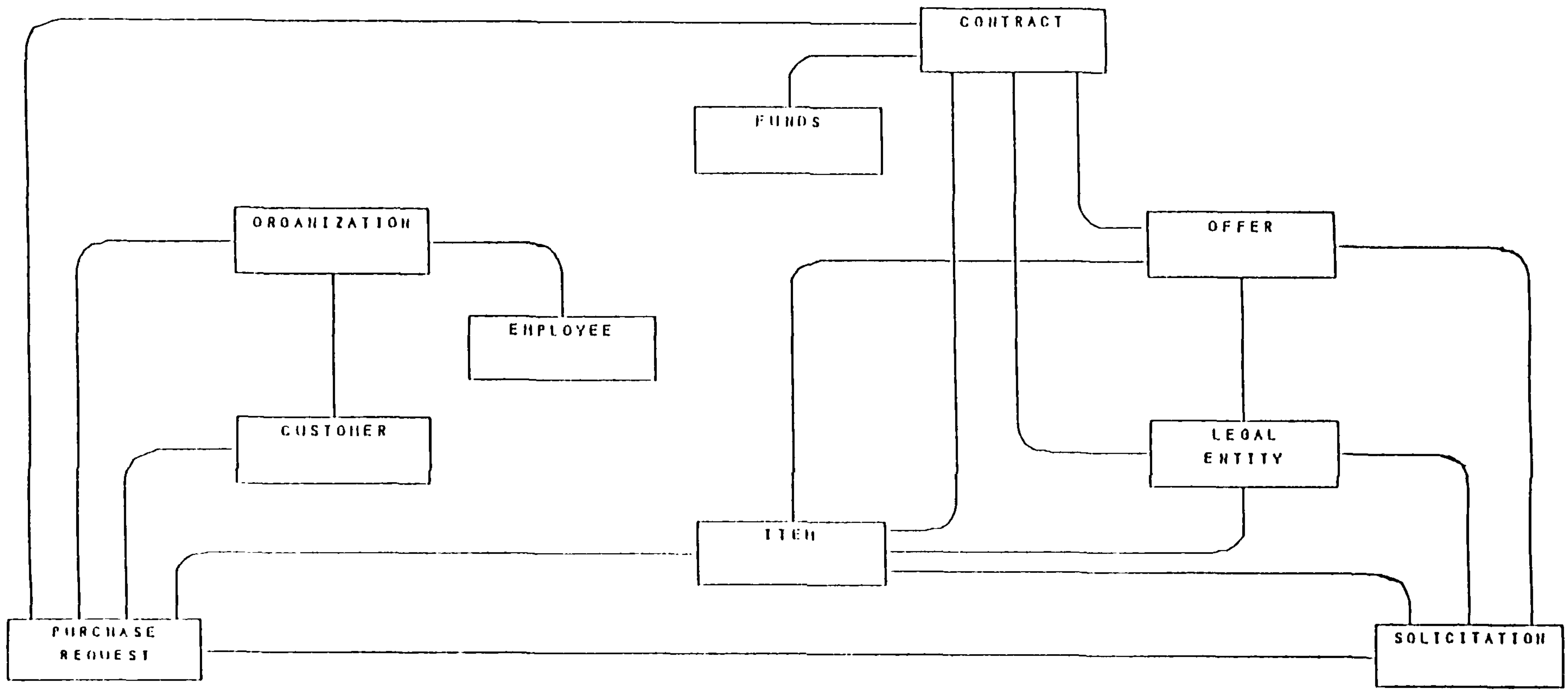
This report describes the entity types that have been selected for the Subject Area being analyzed.

1.2.6 RULES

1.2.6.1 Adherence to scoping criteria

All chosen entity types must pertain to the Information Requirements identified in 1.1 Define Scoping Criteria.

1.2.7 EXAMPLES



Entity Model

September 18, 1983   8:47:33

Figure 1.2.7-1 CDA Entity Relationship Diagram

07/02/90

DEFENSE LOGISTICS AGENCY
Catalogue Query
The following members satisfy this condition...
CONCEPTUAL.

Member Name	Member Type
EN-CONTR	ENTITY
EN-CUST	ENTITY
EN-EMPL	ENTITY
EN-FUND-ACCT	ENTITY
EN-ITEM	ENTITY
EN-LENTY	ENTITY
EN-OFFER	ENTITY
EN-ORG	ENTITY
EN-PR	ENTITY
EN-SOLCN	ENTITY

10 Member(s) Satisfying Catalogue Query

Figure 1.2.7-2 CDA Entity Type List

```
Member Type
Member Name                     Attribute Name & Contents
------------------------------  ------------------------------  ----------------------------------------
ENTITY
EN-CONTR                        ALIAS
                                CATALOGUE
                                   CONCEPTUAL
                                   CONTRACTOR PROFILE
                                   ENTITY
                                   SUBSTANTIVE
                                DEFINITION
                                   A contract is a mutually binding legal instrument obligating the seller
                                   to furnish the supply, service, or data items and the buyer to pay for
                                   them.
                                DESCRIPTION
                                   In addition to bilateral instruments, contracts include (but are not
                                   limited to) job orders or task letters issued under basic order
                                   agreements; letter contracts; orders, such as purchase orders, under
                                   which the contract becomes effective by written acceptance or
                                   performance.
                                ENTRY-CONTENT-APPROVER-ORG
                                ENTRY-CONTENT-MAINTAINER-ORG
                                FULL-NAME
                                   Contract
                                SOURCE
                                   Team member knowledge
                                   FAR subpart 2.1
                                IDENTIFIER IS
                                   CT-CONTR-NBR
                                MULTI-ASSOCIATION TO
                                MULTI-ATTRIBUTES ARE
                                ONE-ASSOCIATION TO
                                ONE-ATTRIBUTES ARE
                                   CT-CONTR-CLOSD-DATE

                                   CT-CONTR-DOLR-AMT

                                   CT-CONTR-EFCTV-AWARD-DATE

                                   CT-CONTR-PAYMT-TERM-TEXT

                                   CT-CONTR-DPAS-RATE-CD

                                   CT-CONTR-STAT-INDCT

                                   CT-CONTR-OBGD-DOLR-AMT
                                SEE
                                SUB-ENTITIES ARE
                                   EN-CONTR-MOD

                                   EN-CLAUS

                                   EN-SOW-ELMNT
```

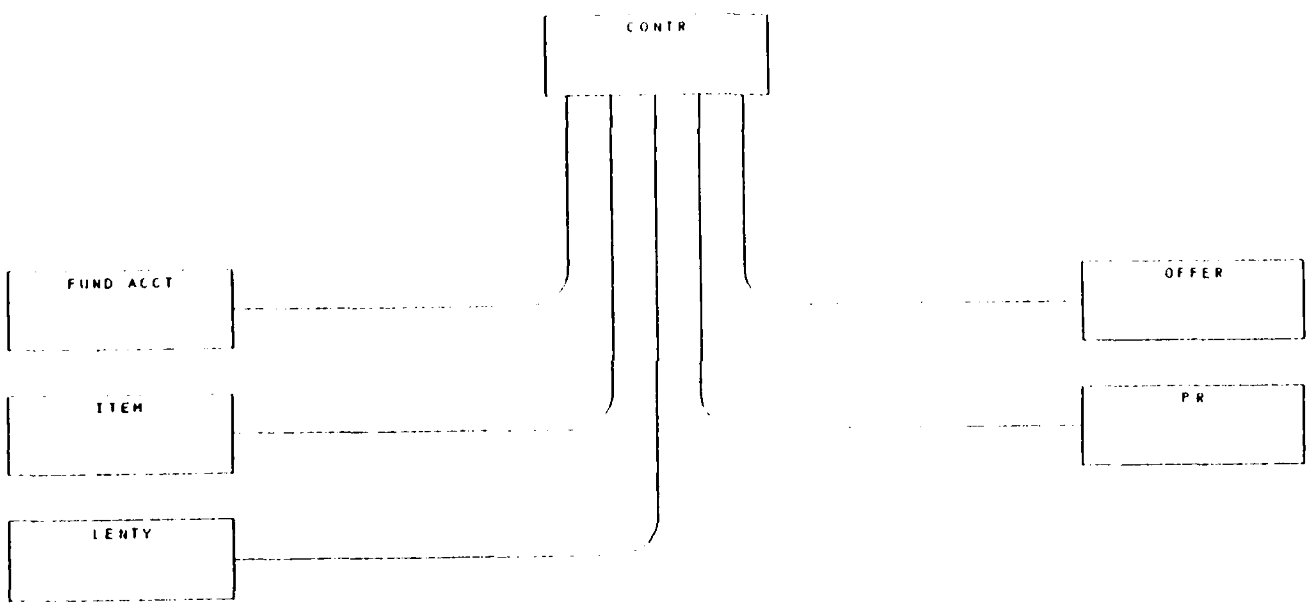
Member Type Member Name	Attribute Name & Contents	
	EN-LNITM	

Figure 1.2.7-3 CDA Entity Type Report

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT IR-CNTRC-CHARC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which identifies and describes a given contractor's resources and their locations. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor Characteristics SOURCE Team member knowledge CONTAINS EN-ITEM EN-LEGAL-ENTY EN-OFFER IR-0021 IR-0022
INFORMATION-REQUIREMENT IR-CNTRC-CONTR-PRFMC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor or Contract Performance SOURCE Team member knowledge CONTAINS EN-CONTR EN-ITEM EN-LEGAL-ENTY IR-0001 IR-0002

Member Type Member Name	Attribute Name & Contents	
	IR-0004	
	IR-0010	
	IR-0016	
	IR-0017	
	IR-0021	
	IR-0022	
	IR-0038	
	IR-0040	
	IR-0041	
	IR-0045	
	IR-0048	

Figure 1.2.7-4 Subject Area Information Requirements Report



June 14 1990 10 58 45

Figure 1.3.7-5 Subject Area Entity Relationship Diagram

07/02/90

DEFENSE LOGISTICS AGENCY
Catalogue Query
The following members satisfy this condition...
ENTITY AND CONTRACTOR PROFILE.

Member Name	Member Type
EN-ALERT-ACTN	ENTITY
EN-ALERT-ACTN-RSN-TYPE	ENTITY
EN-ALERT-ACTN-TYPE	ENTITY
EN-CAR	ENTITY
EN-CLAUS	ENTITY
EN-CLAUS-TYPE	ENTITY
EN-CONTR	ENTITY
EN-CONTR-MOD	ENTITY
EN-CONTR-QL	ENTITY
EN-CONTR-TYPE	ENTITY
EN-CUST	ENTITY
EN-DEFCN	ENTITY
EN-DEFCN-INVST	ENTITY
EN-DEFCN-INVST-TYPE	ENTITY
EN-DID	ENTITY
EN-DISCL	ENTITY
EN-ECP	ENTITY
EN-EMPL	ENTITY
EN-EMPL-CONTR-ROLE	ENTITY
EN-EMPL-CONTR-ROLE-TYPE	ENTITY
EN-FAT-RSLT	ENTITY
EN-FUND-ACCT	ENTITY
EN-GOVAG	ENTITY
EN-GOVAG-CONTR-ROLE	ENTITY

DEFENSE LOGISTICS AGENCY
07/02/90 Catalogue Query

Member Name	Member Type
EN-GOVAG-CONTR-ROLE-TYPE	ENTITY
EN-ITEM	ENTITY
EN-ITEM-FSC	ENTITY
EN-LAB-TEST	ENTITY
EN-LENTY	ENTITY
EN-LENTY-CBLTY	ENTITY
EN-LENTY-POP	ENTITY
EN-LENTY-SRV	ENTITY
EN-LENTY-SRV-TYPE	ENTITY
EN-LNITM	ENTITY
EN-LNITM-INVST	ENTITY
EN-LNITM-SRVLC	ENTITY
EN-OFFER	ENTITY
EN-PAS-RCMDN	ENTITY
EN-PKGNG-CBLTY	ENTITY
EN-PR	ENTITY
EN-PRFMC	ENTITY
EN-PRFMC-FNAR	ENTITY
EN-PRFMC-RCGTN	ENTITY
EN-PROD-DLVAC	ENTITY
EN-PROD-INSPC	ENTITY
EN-PROD-INSPC-TYPE	ENTITY
EN-PRODC-CBLTY	ENTITY
EN-QA-CBLTY	ENTITY
EN-SFTY-CBLTY	ENTITY
EN-SOLCN	ENTITY

DEFENSE LOGISTICS AGENCY

07/02/90 Catalogue Query

Member Name	Member Type
EN-SOW-ELMNT	ENTITY
EN-TECH-CBLTY	ENTITY
EN-TRNSP-CBLTY	ENTITY
EN-WAIVR-DEVTN	ENTITY

54 Member(s) Satisfying Catalogue Query

Figure 1.2.7-6 Subject Area Entity Type List

Member Type
Member Name Attribute Name & Contents

ENTITY

EN-CONTR

ALIAS

CATALOGUE

CONCEPTUAL

CONTRACTOR PROFILE

ENTITY

SUBSTANTIVE

DEFINITION

A contract is a mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.

DESCRIPTION

In addition to bilateral instruments, contracts include (but are not limited to) job orders or task letters issued under basic order agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance.

ENTRY-CONTENT-APPROVER-ORG

ENTRY-CONTENT-MAINTAINER-ORG

FULL-NAME

Contract

SOURCE

Team member knowledge

FAR subpart 2.1

IDENTIFIER IS

CT-CONTR-NBR

MULTI-ASSOCIATION TO

MULTI-ATTRIBUTES ARE

ONE-ASSOCIATION TO

ONE-ATTRIBUTES ARE

CT-CONTR-CLOSD-DATE

CT-CONTR-DOLR-AMT

CT-CONTR-EFCTV-AWARD-DATE

CT-CONTR-PAYMT-TERM-TEXT

CT-CONTR-DPAS-RATE-CD

CT-CONTR-STAT-INDCT

CT-CONTR-OBGD-DOLR-AMT

SEE

SUB-ENTITIES ARE

EN-CONTR-MOD

EN-CLAUS

EN-SOW-ELMNT

Figure 1.2.7-7 Subject Area Entity Type Report

1.2 APPENDIX A - DETAILED IEW PROCEDURES

1.2 SELECT CONCEPTUAL ENTITIES

1.2.1 PURPOSE

1.2.2 COMPONENTS/TERMS

1.2.3 INPUT PRODUCTS

1.2.4 GENERAL PROCEDURES

1.2.4.1 LOGON TO IEW PLANNING WORKSTATION FOR LMVER10 ENCYCLOPEDIA (SEE LOGON PROCEDURES)
1.2.4.2 PULL DOWN "DISPLAY" MENU
1.2.4.3 SELECT "ENTITY DIAGRAM"
1.2.4.4 "OPEN AN ENTITY DIAGRAM FOR ONE OF THE FOLLOWING" WINDOW IS DISPLAYED
1.2.4.5 SELECT "THE ENTITY MODEL"
1.2.4.6 PRESS "PROCEED" KEY
1.2.4.7 EXPAND THE DIAGRAM
1.2.4.8 SELECT (HIGHLIGHT) THE ENTITY TYPES OUTSIDE THE SCOPE

1.2.4.8.1 SELECT "CONTRACT"
1.2.4.8.2 SELECT "LEGAL ENTITY"
1.2.4.8.3 SELECT "OFFER"
1.2.4.8.4 SELECT "ITEM"

1.2.4.9 PULL DOWN THE "SELECT" MENU
1.2.4.10 SELECT "HIDE THESE"
1.2.4.11 PRINT THE ENTITY DIAGRAM (SEE PRINT INSTRUCTIONS)
1.2.4.12 CLOSE WINDOW
1.2.4.13 ENTER DIAGRAM INTO SECTION XX OF THE DATA REQUIREMENTS DOCUMENT

1.2 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

1.2 SELECT CONCEPTUAL ENTITIES

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

1.2.1 PURPOSE

The purpose in these PC DICTIONARY detailed procedures is to explain how to capture and report the information that is gathered while identifying the conceptual entity types that are within the scope.

1.2.2 COMPONENTS/TERMS

1.2.3 INPUT PRODUCTS

1.2.3.1 Conceptual Data Architecture Entity Relationship Diagram (ERD)

See IEW Procedures.

1.2.3.2 CDA Entity List
(Get list of Conceptual Entities)

1.2.3.2.1 Select CATALOGUE from QUERY MENU.

1.2.3.2.2 Select query logic, EQUAL.

1.2.3.2.3 Enter catalogue name, CONCEPTUAL, or select from look up list [F2].

1.2.3.2.4 Check report destination [ALT-F10].

1.2.3.2.5 Start query [F10].

1.2.3.3 CDA Entity Report
(Get report of Entities using the previous list)

1.2.3.3.6 Select MEMBER DEFINITION from REPORT MENU.

1.2.3.3.7 Select member(s) that were on catalogue query report [SPACE BAR].

1.2.3.3.8 Check report destination [ALT-F10].

1.2.3.3.9 Print report [F10-GO].

1.2.3.4 Subject Area Information Requirements Reports Reference Section 1.1 Output Products.

1.2.4 GENERAL PROCEDURES

1.2.4.1 Review CDA Entities

1.2.4.2 Identify Subject Area Entities

1.2.4.2.1 Edit each Entity that has been selected for the Subject Area.

1.2.4.2.2 Edit the CATALOG attribute.

1.2.4.2.3 Add the CATALOG 'CONTRACTOR PROFILE'.

1.2.4.2.4 Add another CATALOG 'ENTITY'.

1.2.4.2.5 Save CATALOGs.

1.2.4.2.6 Edit any other attributes, as needed.

1.2.4.2.7 Save Entity.

1.2.5 OUTPUT PRODUCTS

1.2.5.1 Subject Area ERD
See IEW Procedures

1.2.5.2 Subject Area Entity List
(Get list of Contractor Profile Entities)

1.2.5.2.1 Select CATALOGUE from QUERY MENU.

1.2.5.2.2 Select query logic, EQUAL.

1.2.5.2.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].

1.2.5.2.4 Select query logic, EQUAL.

1.2.5.2.5 Enter catalogue name, ENTITY, or select from look up list [F2].

1.2.5.2.6 Check report destination [ALT-F10].

1.2.5.2.7 Start query [F10].

1.2.5.3 Subject Area Entity Report
(Get report of Entities using previous list)

1.2.5.3.8 Select MEMBER DEFINITION from REPORT MENU.

1.2.5.3.9 Select member(s) that were on catalogue query report [SPACE BAR].

1.2.5.3.10 Check report destination [ALT-F10].

1.2.5.3.11 Print report [F10-GO].

1.3 SELECT FUNCTIONS

Figure 1.3-1 Step Overview
Figure 1.3-2 Step Products
Figure 1.3-3 Step Components

1.3.1 PURPOSE

1.3.2 COMPONENTS/TERMS

1.3.2.1 Function
1.3.2.2 Actions

1.3.2.2.2 Retrieve
1.3.2.2.3 Update
1.3.2.2.4 Delete

1.3.3 INPUT PRODUCTS

1.3.3.1 CIA CRUD Association Matrix
1.3.3.2 Objectives Report
1.3.3.3 Information Requirements Report

1.3.4 GENERAL PROCEDURES

1.3.4.1 Review CRUD Association Matrix
1.3.4.2 Delete Out-of-scope Functions
1.3.4.3 Review Subject Area Functions

1.3.5 OUTPUT PRODUCTS

1.3.5.1 LIA Function CRUD Association Matrix
1.3.5.2 LIA Function Reports

1.3.6 RULES

1.3.6.1 Adherence to scoping criteria
1.3.6.2 Mutual exclusivity
1.3.6.3 Exhaustiveness
1.3.6.4 Naming conventions and definitions

1.3.7 EXAMPLES

Figure 1.3.7-1 IEW CIA CRUD Association Matrix (Two Levels of Functions)
Figure 1.3.7-2 IEW Function Report (Function A)
Figure 1.3.7-3 PCD CIA Functions List (Two Levels of Functions)
Figure 1.3.7-4 PCD Function Report (Function A)
Figure 1.3.7-5 IEW LIA Function CRUD Association Matrix (Level 0 Functions Only)
Figure 1.3.7-6 IEW LIA Function Report (For Function AA)
Figure 1.3.7-7 PCD Function Report (For Function AA)
Figure 1.3.7-8 Information Requirements Report

1.3 Appendix A - Detailed IEW Procedures
1.3 Appendix B - Detailed PC Dictionary Procedures

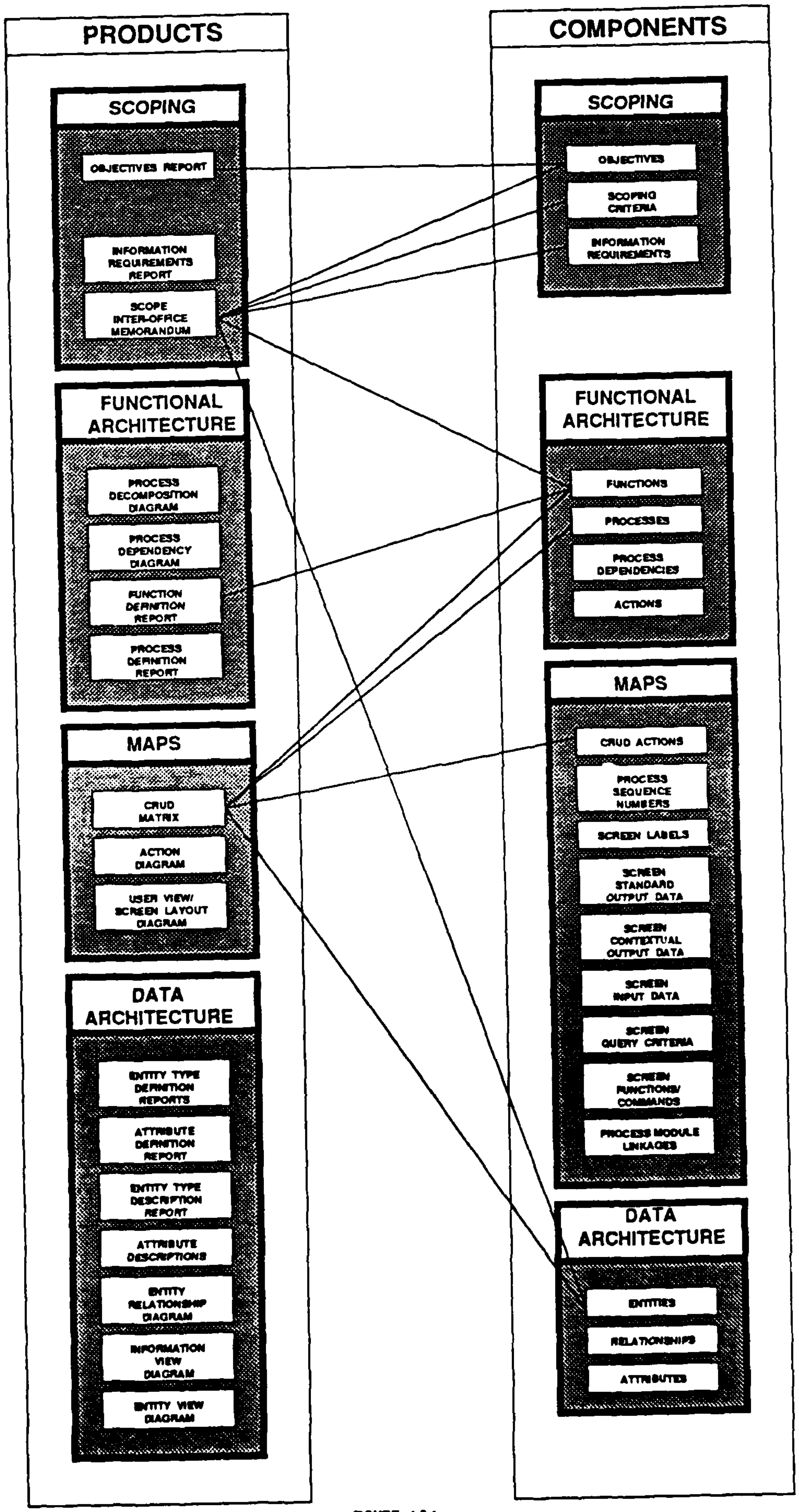


FIGURE 1.3-1
STEP OVERVIEW

PRODUCTS / 1.3 SELECT FUNCTIONS STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. REVIEW CRUD ASSOCIATION MATRIX	R		R						R									
2. DELETE OUT-OF-SCOPE FUNCTIONS							RD											
3. REVIEW SUBJECT AREA FUNCTIONS							R											

FIGURE 1.3-2
STEP PRODUCTS

COMPONENTS 1.3 SELECT FUNCTIONS STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW CRUD ASSOCIATION MATRIX	R		R	R															
2. DELETE OUT-OF-SCOPE FUNCTIONS				RD															
3. REVIEW SUBJECT AREA FUNCTIONS				R															

FIGURE 1.3-3
STEP COMPONENTS

1.3 SELECT FUNCTIONS

1.3.1 PURPOSE

The purpose of this step is to apply the scoping criteria to the CIA (Conceptual Information Architecture) functions in order to select those functions out of the CIA which will be decomposed and analyzed in the LIA (Logical Information Architecture) Global Analysis phase.
The reason for selecting those functions which are within scope and for deleting those which are out of scope is to be able to develop a set of LIA products (diagrams, reports, and documents) which contain only those components which are involved in the Subject Area.

1.3.2 COMPONENTS/TERMS

1.3.2.1 Function

A function is a major, high-level activity of an enterprise, comprising a broad group of processes that together completely support one aspect of furthering a mission of an enterprise. Because a function covers a broad group of activities, it is not normally executable or executed as a whole; its component processes are executed. It may be identified with a business responsibility but not with an organizational unit. A function is distinguishable from another function in terms of expertise or skills required to perform the component processes. It tends to have a long life span, subject to change only when the nature of the enterprise changes. Functions are identified and described at the conceptual level of modeling. Although all components of the functional architecture are independent of organizational structure, functions tend to reflect organizational lines because enterprises tend to organize themselves into groups which each address one aspect of furthering the mission of its enterprise. However, organizations sometimes form functional groupings for other reasons, such as remote locations, resource constraints, etc. To avoid building organizational, geographical, or other biases into the functional models, care must be taken to analyze functions separated from organizational structure. Decomposing a function yields its component processes.

1.3.2.2 Actions

An action is an activity which occurs within a process on an entity, relationship, attribute, or subprocess. Actions Create, Retrieve, Update, and Delete instances of entities and information about entities.

1.3.2.2.1 Create

Creation of an instance of an entity for the very first time.

1.3.2.2.2 Retrieve

Read instances and information about entities.

1.3.2.2.3 Update

Updating or adding any new information to an already existing entity. Updating information about an entity can include the deletion of existing information and the addition of new information.

1.3.2.2.4 Delete

Deleting information about an entity or deleting instances of entities.

1.3.3 INPUT PRODUCTS

1.3.3.1 CIA CRUD Association Matrix

The CRUD Association Matrix from the CIA depicts the associations between the functions and the entities of the CIA. See Figure 1.3.7-1.

1.3.3.2 Objectives Report

The Objectives Report (Figure 1.3.7-9) provides the objectives which selected functions must meet.

1.3.3.3 Information Requirements Report

The Information Requirements Report (Figure 1.3.7-8) provides the information requirements which selected functions must address.

1.3.4 GENERAL PROCEDURES

1.3.4.1 Review CRUD Association Matrix

Identify the functions in the rows on the CIA CRUD Association Matrix. If functions are not identified differently than processes, then apply the definitions and rules to do so. Identify functions by adding "(F)" to the end of the name of each.

Also, every function on the CRUD Association Matrix should have the actions of its subordinates "rolled-up." If any subordinate functions or processes have C, R, U, and/or D indicated for an entity, then the parent should also have the CRUD indicated for that entity.

1.3.4.2 Delete Out-of-scope Functions

It is assumed that the entities which are not within the scope of the Subject Area have been deleted from the LIA.

It is also assumed that all functions which use entities are properly indicated with C, R, U, or D properties. If subordinate functions have CRUD properties then the parent should also have those properties.

Delete those functions within the CRUD Association Matrix which do not use the entities which have been selected as being within the scope of the subject area; delete those functions which do not contain any (C, R, U, or D) in their rows.

If one of the scoping criteria is to exclude those functions which do not perform specific "actions" (e.g., Create, Retrieve, Update, or Delete), then also delete those functions.

If any processes are shown on the CRUD Association Matrix then "exclude" these (do not "delete").

Review the definitions of each function and apply the scoping "objectives" to determine whether the function uses the selected entities. Delete those functions which do not use the selected entities. Only those functions which are within the scope of the subject area now remain in the CRUD Association Matrix. These functions are associated with the entities which are within the scope. This is the Logical Information Architecture (LIA) CRUD Association Matrix for functions.

1.3.4.3 Review Subject Area Functions

Produce reports with the selected subject area functions and their definitions. Review the definitions for completeness and accuracy while making sure that the functions pertain to the subject area.

1.3.5 OUTPUT PRODUCTS

1.3.5.1 LIA Function CRUD Association Matrix

1.3.5.2 LIA Function Reports

1.3.6 RULES

1.3.6.1 Adherence to scoping criteria

All chosen Functions must follow the scoping criteria (selected objectives and information requirements).

1.3.6.2 Mutual exclusivity

All functions must be mutually exclusive at the same level of their respective hierarchy.

1.3.6.3 Exhaustiveness

All functions at one level of a hierarchy must completely exhaust the parent function.

1.3.6.4 Naming conventions and definitions

All functions must follow the component definitions and naming conventions: Functions names are nouns.

1.3.7 EXAMPLES

	CONTRACT	LEGAL ENTITY	OFFER
A ACQUISITION (F)	CRU	CRU	R
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
B INDUSTRIAL PREP PLANNING (F)	R	RU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

February 13, 1990 11:01:37

Figure 1.3.7-1 IEW CIA CRUD Association Matrix

Information Engineering Workbench Report
Object Summary Report
July 3, 1990   9:14:00   NEWUSER   V06

Process A ACQUISITION (F)

PROPERTIES:

DEFINITION:
ACQUISITION CONSISTS OF THE FOLLOWING FUNCTIONS:

AA PURCHASE REQUEST PROCESSING
AB OFFER EVALUATION
AC CONTRACT AWARD
AD CONTRACT ADMINISTRATION
AE FORWARD PRICE RATE DEVELOPMENT
AF CONTRACTOR SYSTEM REVIEW

Figure 1.3.7-2 IEW Function Report (Function A)

DEFENSE LOGISTICS AGENCY

07/02/90 Catalogue Query

The following members satisfy this condition...
FUNCTION AND LIFE CYCLE FUNCTION.

Member Name	Member Type
FN-ACQST	FUNCTION
FN-CAND-ITEM-IDNTF	FUNCTION
FN-CNTRC-SYS-RVU	FUNCTION
FN-CONTR-ADMIN	FUNCTION
FN-CONTR-AWARD	FUNCTION
FN-FWD-PRICE-RATE-DVPMT	FUNCTION
FN-INDST-PREP-PLANG	FUNCTION
FN-OFFER-EVALN	FUNCTION
FN-PKG-DVPMT	FUNCTION
FN-POST-PLANG	FUNCTION
FN-PRCH-RQST-PRCNG	FUNCTION
FN-PRE-PLANG	FUNCTION

12 Member(s) Satisfying Catalogue Query

Figure 1.3.7-3 PCD CIA Functions List

DEFENSE LOGISTICS AGENCY
Member Definition Report
Page 1

07/02/90
Member Type
Member Name

Attribute Name & Contents

```
FUNCTION
FN-ACQST                     ALIAS
                                IEW A ACQUISITION (F)
                             CATALOGUE
                                FUNCTION
                                LIFE CYCLE FUNCTION
                             DEFINITION
                                THIS FUNCTION EXISTS FOR THE FOLLOWING PURPOSES:
                                1.  TO PROCESS PURCHASE REQUESTS.
                                2.  TO EVALUATE OFFERS.
                                3.  TO AWARD CONTRACTS.
                                4.  TO ADMINISTER CONTRACTS.
                                5.  TO DEVELOP FORWARD PRICE RATE.
                                6.  TO REVIEW CONTRACTOR SYSTEM.
                             DESCRIPTION
                             ENTRY-CONTENT-APPROVER-ORG
                             ENTRY-CONTENT-MAINTAINER-ORG
                             FULL-NAME
                                ACQUISITION
                             SOURCE
                             DECOMPOSITION-TEXT
                             CONTAINS
                             SEE
                                FN-4-0-CONTR
                                FOR "BAA FUNCTION"

                                FN-5-0-CONTR-ADMIN
                                FOR "BAA FUNCTION"
```

Figure 1.3.7-4 PCD Function Report (Function A)

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

Figure 1.3.7-5 IEW LIA Function CRUD Association Matrix

Information Engineering Workbench Report
Object Summary Report
February 13, 1990 10:50:08 NEWUSER PLIATM Page 1

Process AA PURCHASE REQ PROCESSING (F)

PROPERTIES:

LAST UPDATE: 1990/02/13 10:49 NEWUSER

CREATED: 1989/06/16 11:05:25 NEWUSER

DEFINITION:
1. Assure adequacy of PR.
2. Develop Strategy for acquisition
3. Prepare Acquisition Plan
4. Prepare Solicitation

ASSOCIATIONS:

HAS
External Agent NON-DLA ACTIVITY
INVOLVES
Entity Type CONTRACT

ASSOCIATION PROPERTIES:

ACTION: R
Entity Type LEGAL ENTITY

ASSOCIATION PROPERTIES:

ACTION: R
IS COMPOSED OF
Process AAA ASSURE ADEQUACY OF PR
Process AAB DEVELOP STRATEGY FOR ACQ
Process AAC PREPARE ACQUISITION PLAN
Process AAD PREPARE SOLICITATION

Figure 1.3.7-6 IEW LIA Function Report (For Function AA)

Member Type Member Name	Attribute Name & Contents
FUNCTION	
FN-PRCH-RQST-PRCNG	ALIAS
	IEW AA PURCHASE REQ PROCESSING (F)
	CATALOGUE
	CONTRACTOR PROFILE
	FUNCTION
	LIFE CYCLE FUNCTION
	DEFINITION
	THIS FUNCTION EXISTS FOR THE FOLLOWING PURPOSES:
	1. TO ASSURE ADEQUACY OF PR.
	2. TO DEVELOP STRATEGY FOR ACQUISITION.
	3. TO PREPARE ACQUISITION PLAN.
	4. TO PREPARE SOLICITATION.
	DESCRIPTION
	ENTRY-CONTENT-APPROVER-ORG
	ENTRY-CONTENT-MAINTAINER-ORG
	FULL-NAME
	PURCHASE REQUEST PROCESSING
	SOURCE
	DECOMPOSITION-TEXT
	CONTAINS
	PR-ASSUR-PRCH-RQST-ADQCY
	PR-DEVLP-ACQST-STRTG
	PR-PREP-ACQST-PLAN
	PR-PREP-SOLCN
	SEE
	FN-4-1-PERFM-PRE-AWARD-PLAN FOR "BAA FUNCTION"
	FN-4-2-SOLCT-OFFE FOR "BAA FUNCTION"
	EN-CONTR FOR "Read"
	EN-ITEM FOR "Read/Update"
	EN-LEGAL-ENTY FOR "Create/Read/Update/Delete"

Figure 1.3.7-7 PCD Function Report (For Function AA)

DEFENSE LOGISTICS AGENCY

07/02/90	Member Definition Report	Page 1

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT IR-0001	CATALOGUE CONTRACTOR PROFILE DEFINITION Contractors should track subcontractors performance. ENTRY-CONTENT-APPROVER-ORG FULL-NAME SOURCE CONTAINS

Figure 1.3.7-8 Information Requirements Report

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

Member Type Member Name	Attribute Name & Contents
OBJECTIVE	
OBJ-00001-OBTN-SFCNT-ESN-MTL	CATALOGUE
	DEFINITION
	Obtain sufficient essential materiel to meet readiness and sustainability requirements for the full spectrum of operating scenarios.
	ENTRY-CONTENT-APPROVER-ORG
	FULL-NAME
	Obtain Sufficient Essential Materiel
	SOURCE
	DLA 1988 Strategic Plan, page 32

Figure 1.3.7-9 Objectives Report

1.3 APPENDIX A - DETAILED IEW PROCEDURES

1.3 SELECT FUNCTIONS

There are no IEW procedures for this section.

1.3 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

1.3 SELECT FUNCTIONS

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

1.3.1 PURPOSE

The purpose in these PC DICTIONARY detailed procedures is to explain how to capture and report the information that is gathered while identifying the functions that are within the scope.

1.3.2 COMPONENTS/TERMS

1.3.3 INPUT PRODUCTS

1.3.3.1 CIA CRUD Association Matrix

See IEW Procedures.

1.3.3.2 Information Requirements Reports Reference Section 1.2 Output Products.

1.3.3.3 Objective Report Reference Section 1.2 Output Products.

1.3.4 GENERAL PROCEDURES

1.3.4.1 Review CIA CRUD Association Matrix

1.3.4.2 Delete Out-of-Scope Functions

1.3.4.2.1 Edit each Function that has been selected for the Subject Area.

1.3.4.2.2 Edit the CATALOG attribute.

1.3.4.2.3 Add the CATALOG 'CONTRACTOR PROFILE'.

1.3.4.2.4 Add another CATALOG 'FUNCTION'.

1.3.4.2.5 Save CATALOGs.

1.3.4.2.6 Edit any other attributes, as needed.

1.3.4.2.7 Save Function.

1.3.4.3 Review Subject Area Functions

1.3.5 OUTPUT PRODUCTS

1.3.5.1 LIA Function CRUD Association Matrix

See IEW Procedures.

1.3.5.2 LIA Function Reports
(Get list of Subject Area Functions)

1.3.5.2.1 Select CATALOGUE from QUERY MENU.

1.3.5.2.2 Select query logic, EQUAL.

1.3.5.2.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].

1.3.5.2.4 Select query logic, EQUAL.

1.3.5.2.5 Select query logic, EQUAL.

1.3.5.2.6 Enter catalogue name, FUNCTION, or select from look up list [F2].

1.3.5.2.7 Check report destination [ALT-F10].

1.3.5.2.8 Start query [F10].
(Get report of Subject Area Functions)

1.3.5.2.9 Select MEMBER DEFINITION from REPORT MENU.

1.3.5.2.10 Select member(s) that were on catalogue query report [SPACE BAR].

1.3.5.2.11 Check report destination [ALT-F10].

1.3.5.2.12 Print report [F10-GO].

1.4 PREPARE SCOPE MEMORANDUM

Figure 1.4-1 Step Overview
Figure 1.4-2 Step Products
Figure 1.4-3 Step Components

1.4.1 PURPOSE

1.4.2 COMPONENTS

1.4.2.1 Objective
1.4.2.3 Information Requirement
1.4.2.3 Entity
1.4.2.4 Process

1.4.3 INPUT PRODUCTS

1.4.3.1 Subject Area Objective Report
1.4.3.2 Subject Area Information Requirements Report
1.4.3.3 Subject Area Entity Relationship Diagram
1.4.3.4 Subject Area Entity Reports
1.4.3.5 Subject Area Function Decomposition Diagram
1.4.3.6 Subject Area Function Report

1.4.4 GENERAL PROCEDURES

1.4.4.1 Gather Suppporting Documentation
1.4.4.2 Prepare DLA-IOM

1.4.5 OUTPUT PRODUCTS

1.4.5.1 Subject Area Scope IOM

1.4.6 RULES

1.4.7 EXAMPLES

Figure 1.4.7-1 Subject Area Objective Report
Figure 1.4.7-2 Subject Area Information Requirements Report
Figure 1.4.7-3 Subject Area Entity Relationship Diagram
Figure 1.4.7-4 Subject Area Entity Reports
Figure 1.4.7-5 Subject Area Function Decomposition Diagram
Figure 1.4.7-6 Subject Area Function Report
Figure 1.4.7-7 Subject Area Scope IOM

1.4 Appendix A - Detailed IEW Procedures
1.4 Appendix B - Detailed PC Dictionary Procedures

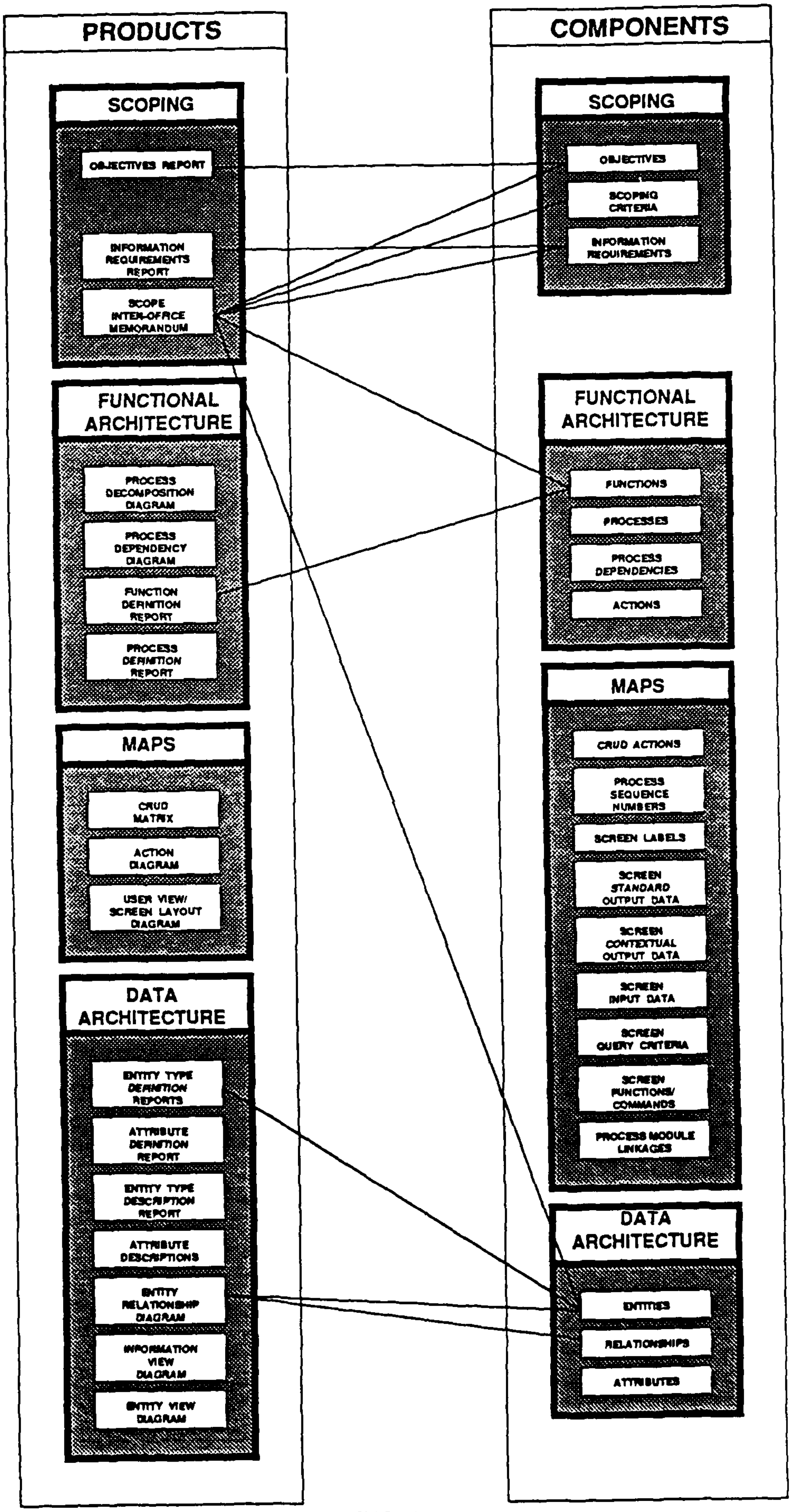


FIGURE 1.4-1
STEP OVERVIEW

PRODUCTS / 1.4 PREPARE SCOPE MEMORANDUM STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. GATHER SUPPORTING DOCUMENTATION	R	R					R					R				R		
2. PREPARE DLA-IOM			C															

FIGURE 1.4-2
STEP PRODUCTS

COMPONENTS / 1.4 PREPARE SCOPE MEMORANDUM STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. GATHER SUPPORTING DOCUMENTATION	R		R	R													R	R	
2. PREPARE DLA-IOM																			

FIGURE 1.4-3
STEP COMPONENTS

1.4 PREPARE SCOPE MEMORANDUM

1.4.1 PURPOSE

To document the scope of the Subject Area for:

- management review and approval
- setting the proper expectation

1.4.2 COMPONENTS

1.4.2.1 Objective

1.4.2.3 *Information Requirement*

1.4.2.3 Entity

1.4.2.4 Process

1.4.3 INPUT PRODUCTS

1.4.3.1 Subject Area Objective Report (Figure 1.4.7-1)

1.4.3.2 Subject Area Information Requirements Report (Figure 1.4.7-2)

1.4.3.3 Subject Area Entity Relationship Diagram (Figure 1.4.7-3)

1.4.3.4 Subject Area Entity Reports (Figure 1.4.7-4)

1.4.3.5 Subject Area Function Decomposition Diagram (Figure 1.4.7-5)

1.4.3.6 Subject Area Function Report (Figure 1.4.7-6)

1.4.4 GENERAL PROCEDURES

1.4.4.1 Gather Supporting Documentation

Gather copies of the products listed as inputs. These will be *attachments to a DLA IOM prepared in the next step.* These attachments contain the Project Team's recommendation on scope.

The Project Team may choose to also gather products that represent the Conceptual Architecture so that what is in scope and what is not in scope will be apparent.

1.4.4.2 Prepare DLA-IOM

An IOM is prepared that explains the purpose of the memo and the attachments. The memo should be addressed to the Program Manager from the Team's leader. The Program Manager will coordinate the IOM for comments, review meetings and ultimately approval.

The memo should identify the scheduled date for completing Global Analysis. Any changes to scope beyond this date will generally result in significant rework which translates into cost overruns and slipped schedules.

After completing the memo, the Team will be expected to proceed directly into Global Analysis without waiting for approval. Changes received during Global Analysis will require the Team to retrace Global Analysis steps.

1.4.5 OUTPUT PRODUCTS

1.4.5.1 Subject Area Scope IOM (Figure 1.4.7-7)

1.4.6 RULES

1.4.7 EXAMPLES

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

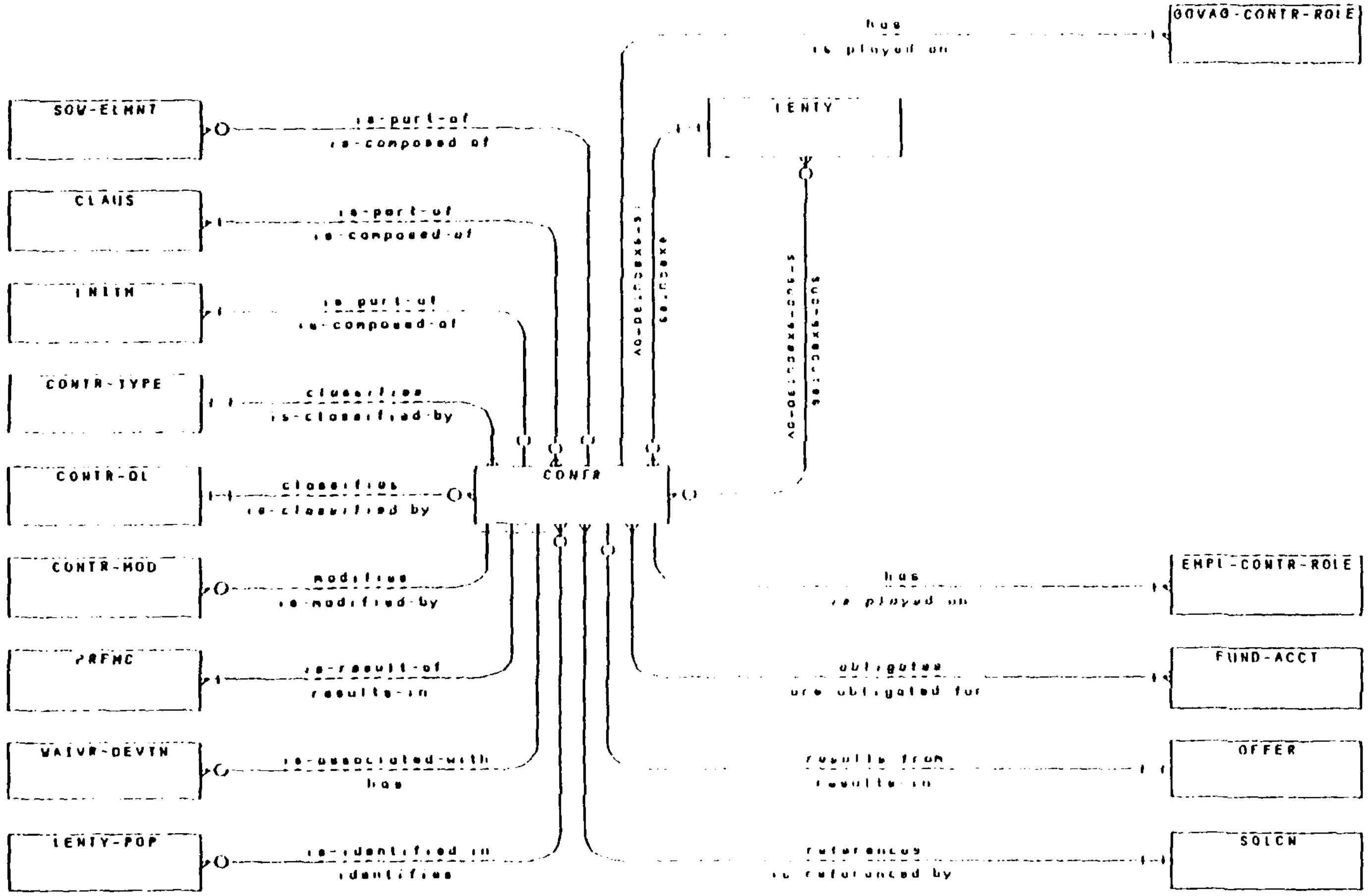
Member Type Member Name	Attribute Name & Contents
OBJECTIVE	
OB-PROV-CNTRC-PRFMC-DATA	CATALOGUE CONTRACTOR PROFILE OBJECTIVE DEFINITION Provide contractor performance data in order to award contracts to the best performing contractors. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Provide Contractor Performance Data SOURCE Team member knowledge

Figure 1.4.7-1 Subject Area Objective Report

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT IR-CNTRC-CHARC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which identifies and describes a given contractor's resources and their locations. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor Characteristics SOURCE Team member knowledge CONTAINS EN-ITEM EN-LEGAL-ENTY EN-OFFER IR-0021 IR-0022
INFORMATION-REQUIREMENT IR-CNTRC-CONTR-PRFMC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor or Contract Performance SOURCE Team member knowledge CONTAINS EN-CONTR EN-ITEM EN-LEGAL-ENTY IR-0001 IR-0002

Member Type Member Name	Attribute Name & Contents	
	IR-0004	
	IR-0010	
	IR-0016	
	IR-0017	
	IR-0021	
	IR-0022	
	IR-0038	
	IR-0040	
	IR-0041	
	IR-0045	
	IR-0048	

Figure 1.4.7-2 Subject Area Information Requirements Report



SA-CONTRACT-ROOT

June 13 1990 15:46:48

Figure 1.4.7-3 Subject Area Entity Relationship Diagram

Member Type Member Name	Attribute Name & Contents
ENTITY EN-CONTR	

ALIAS
CATALOGUE
  CONCEPTUAL
  CONTRACTOR PROFILE
  ENTITY
  SUBSTANTIVE
DEFINITION
  A contract is a mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.
DESCRIPTION
  In addition to bilateral instruments, contracts include (but are not limited to) job orders or task letters issued under basic order agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
  Contract
SOURCE
  Team member knowledge
  FAR subpart 2.1
IDENTIFIER IS
  CT-CONTR-NBR
MULTI-ASSOCIATION TO
MULTI-ATTRIBUTES ARE
ONE-ASSOCIATION TO
ONE-ATTRIBUTES ARE
  CT-CONTR-CLOSD-DATE

  CT-CONTR-DOLR-AMT

  CT-CONTR-EFCTV-AWARD-DATE

  CT-CONTR-PAYMT-TERM-TEXT

  CT-CONTR-DPAS-RATE-CD

  CT-CONTR-STAT-INDCT

  CT-CONTR-OBGD-DOLR-AMT
SEE
SUB-ENTITIES ARE
  EN-CONTR-MOD

  EN-CLAUS

  EN-SOW-ELMNT

Member Type Member Name	Attribute Name & Contents
	EN-LNITM
ENTITY	
EN-LENTY	ALIAS
	CATALOGUE
	CONCEPTUAL
	CONTRACTOR PROFILE
	ENTITY
	SUBSTANTIVE
	DEFINITION
	Legal entity is a person or group of persons, a corporation or other existence recognized by law as having rights and duties.
	DESCRIPTION
	This includes current contractor, past contractor, potential contractor, or offeror.
	ENTRY-CONTENT-APPROVER-ORG
	ENTRY-CONTENT-MAINTAINER-ORG
	FULL-NAME
	LEGAL-ENTITY
	SOURCE
	Dictionary
	Team member knowledge
	IDENTIFIER IS
	CT-LENTY-NBR
	MULTI-ASSOCIATION TO
	MULTI-ATTRIBUTES ARE
	CT-LENTY-FAX-NBR
	CT-LENTY-SIC-CD
	CT-LENTY-TLPHN-NBR
	ONE-ASSOCIATION TO
	ONE-ATTRIBUTES ARE
	CT-LENTY-BKRCY-CD
	CT-LENTY-BUSNS-SIZE
	CT-LENTY-DB-RATE-DATE
	CT-LENTY-NAME
	CT-LENTY-OWNSP-CD
	CT-LENTY-PARNT-IDNTF
	CT-LENTY-STAT-CD
	CT-LENTY-TAX-ID-NBR

Member Type
Member Name | Attribute Name & Contents

CT-LENTY-BUSNS-ADRS-TEXT

CT-LENTY-DB-RATE-CD

CT-LENTY-DISCL-STMT-STAT-INDCT

CT-LENTY-ELGBY-STAT-INDCT

CT-LENTY-MALNG-ADRS-TEXT

CT-LENTY-NOVTN-STAT-CD

CT-LENTY-ASSN-CAGE-CD

CT-LENTY-CAGE-CD

CT-LENTY-WOMAN-OWNSP-INDCT

CT-LENTY-DISAD-INDCT

CT-LENTY-MNRTY-INDCT

SEE

EN-SRC

EN-OFRR

EN-CNTRC

EN-SUB-CNTRC

EN-PRE-AWD-SURVY-RQST

EN-CAPBL

EN-CNTRC-HIST

EN-CNTRC-SYS

EN-CNTRC-CORTV-ACTN

EN-CONTR-QLTY-ASRNC

EN-FINDG

EN-FWD-PRICE-RATE

EN-PRCDR-EVAL

EN-PRCDR-RVU

Member Type
Member Name Attribute Name & Contents

EN-QLTY-DATA-EVAL

EN-SRVLC

EN-CONTR
FOR "ASSOCIATION"

EN-ITEM
FOR "ASSOCIATION"

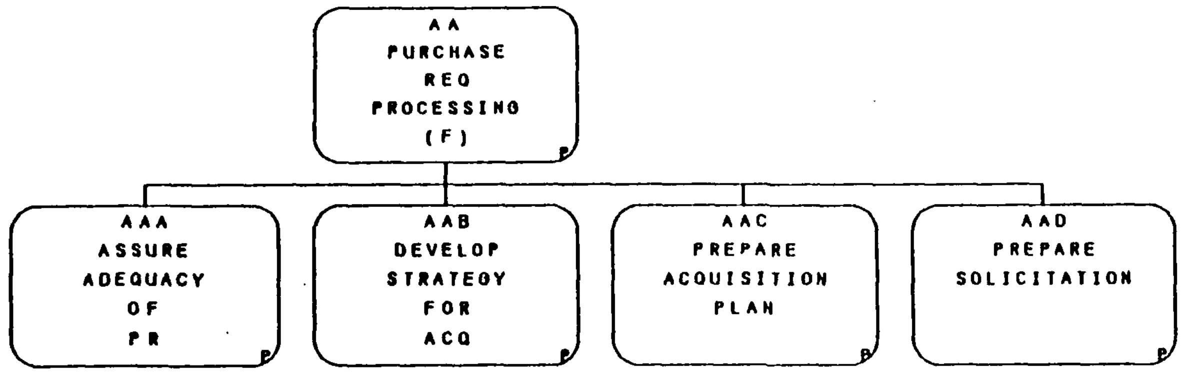
EN-OFFER
FOR "ASSOCIATION"

EN-SOLCN
FOR "ASSOCIATION"
SUB-ENTITIES ARE
EN-LENTY-CBLTY

EN-LENTY-PRFMC-PLACE

EN-LENTY-SYS-RVU

Figure 1.4.7-4 Subject Area Entity Report



AA PURCHASE REQ PROCESSING (F)

Figure 1.4.7-5 Subject Area Function Decomposition Diagram

DEFENSE LOGISTICS AGENCY
07/02/90 Member Definition Report Page 1

Member Type
Member Name Attribute Name & Contents

------------------------------ ------------------------------ --

FUNC,ION
FN-ACQST

ALIAS
   IEW A ACQUISITION (F)
CATALOGUE
   FUNCTION
   LIFE CYCLE FUNCTION
DEFINITION
   THIS FUNCTION EXISTS FOR THE FOLLOWING PURPOSES:
   1. TO PROCESS PURCHASE REQUESTS.
   2. TO EVALUATE OFFERS.
   3. TO AWARD CONTRACTS.
   4. TO ADMINISTER CONTRACTS.
   5. TO DEVELOP FORWARD PRICE RATE.
   6. TO REVIEW CONTRACTOR SYSTEM.
DESCRIPTION
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
   ACQUISITION
SOURCE
DECOMPOSITION-TEXT
CONTAINS
SEE
   FN-4-0-CONTR
   FOR "BAA FUNCTION"

   FN-5-0-CONTR-ADMIN
   FOR "BAA FUNCTION"

Figure 1.4.7-6 Subject Area Function Report

CONTRACTOR PROFILE PILOT TEAM

SUBJECT: Memorandum of Scoping for Logical Information Architecture (Contractor Profile Pilot)

TO: DSMO-PK
ATTN: LTC Mike Hodges, Program Manager

1. Reference: Logical Information Architecture (LIA) Development Procedures Draft, February 1990, Section 1.4 (enclosure 1, PREPARE SCOPE MEMORANDUM).

2. Purpose: The purposes of the Scoping Phase of the LIA Development Procedures include the following:

a. To develop the scoping criteria for selecting components out of the Conceptual Information Architecture which will be analyzed and designed during the Logical Information Architecture Development Phase. The scoping criteria consist of Information Requirements (IR's) and Objectives, and will be used throughout the Logical Design.

b. To select the conceptual entities and functions which are within the scope of the Contractor Profile Subject Area based upon the scoping criteria (i.e., IR's and Objectives).

3. Explanation of attachments:

The following steps were performed to produce the attachments (products) required to complete the Scoping Phase:

a. The Pilot team reviewed the Conceptual Information Architecture (CIA) (enclosure 2, CIA ASSOCIATION MATRIX). This matrix shows the conceptual entities, functions and processes which constitute the entire CIA.

b. Identified, collected and reviewed source documents (enclosure 3, LIST OF SCOPING SOURCE DOCUMENTS).

c. Defined detailed Information Requirements (IR's) (enclosure 4, DETAILED INFORMATION REQUIREMENTS).

d. Defined high-level Information Requirements (enclosure 5, HIGH-LEVEL INFORMATION REQUIREMENTS).

e. Defined the Objective of the Contractor Profile Subject Area (enclosure 6, OBJECTIVE OF THE CONTRACTOR PROFILE SUBJECT AREA).

f. Applied the scoping criteria to the Conceptual Data Architecture and selected the conceptual entities which are within the scope of the Logical Data Architecture (enclosure 7, CONCEPTUAL ENTITY RELATIONSHIP DIAGRAM, enclosure 8, SELECTED ENTITY RELATIONSHIP DIAGRAM, enclosure 9, SELECTED ENTITY REPORT).

g. Applied the scoping criteria to the Conceptual Functional Architecture and selected the functions which are within the scope of the Logical Functional Architecture. (enclosure 10, CONCEPTUAL FUNCTION TO ENTITY ASSOCIATION MATRIX, enclosure 11, SELECTED FUNCTION TO ENTITY ASSOCIATION MATRIX, enclosure 12, SELECTED FUNCTION REPORT).

4. Recommendations:

a. The Pilot Team recommends that the objective of the Contractor Profile Pilot Logical Information Architecture be as follows:

"Provide contractor performance data in order to award contracts to the best performing contractors."

b. The Pilot team recommends that the high level information requirements to be fulfilled by the Contractor Profile Pilot are as follows:

(1) Contract or Contractor Performance

"Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients."

(2) Contractor Capability

"Information which identifies and describes a contractor's ability and capacity to provide a service or a product."

(3) Contractor Characteristics

"Information which identifies and describes a given contractor's resources and its location(s)."

(4) Information Requirements not to be included (definitions listed in enclosure 13).

(a) Bids and Proposals
(b) Contract Requirements
(c) Item
(d) Government Performance

c. The Pilot team has applied the scoping criteria according to the scoping procedures, selected the entities, and recommends that the following entities (as defined in enclosure 9, SELECTED ENTITY REPORT) be included within the scope of the Logical Data Architecture:

(1) Legal Entity
(2) Contract
(3) Offer
(4) Item

The following entities are not within the scope of the Contractor Profile Pilot Logical Information Architecture because they do not contain attributes relative to the selected contractor performance, capability and characteristics Information Requirements and Objective. Entities not included are as follows (definitions listed in enclosure 14):

(5) Employee
(6) Solicitation
(7) Organization
(8) Funds
(9) Purchase Request
(10) Customer

d. The Pilot team has applied the scoping criteria, selected functions according to the scoping procedures and recommends that the following functions (described in enclosure 12, SELECTED FUNCTION REPORT) be included within the scope of the Logical Functional Architecture:

(1) Purchase Request Processing
(2) Offer Evaluation
(3) Contract Award
(4) Contract Administration

(5) Forward Price Rate Development
(6) Contractor System Review
(7) Mobilization Requirement Determination
(8) Industrial Preparedness Planning (IPP) Candidate Item Evaluation
(9) Production Planning Schedule Development
(10) IPP Package Development

5. The scheduled date for the completion of the next phase of the Logical Information Architecture Development (i.e., Global Analysis) is 30 March 1990.

Francis C. Bruno
Team Leader
DLA-AP

Team Members

DLA-C (J. Faust)
DLA-P (J. Plott)
DLA-Q (D. Fuller)
DLA-Q (P. Wells)

Figure 1.4.7-7 Subject Area Scope IOM

1.4 APPENDIX A - DETAILED IEW PROCEDURES

1.4 PREPARE SCOPE MEMORANDUM

There are no IEW procedures for this section.

1.4 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

1.4 PREPARE SCOPE MEMORANDUM

There are no PC Dictionary procedures for this section.

2 GLOBAL ANALYSIS

In this phase the global Functional and Data Architectures are developed "vertically" in more depth. The functions which were selected in the scoping phase are decomposed into processes and the selected entities are decomposed into subentities and attributes. These two architectures are "mapped" together at all levels of the decomposition. Additionally, the processes are related together according to their dependencies and sequences of occurrence in the life cycles of the entities, (e.g., the life cycle of an "item" or "contract"). The scoping criteria (i.e., Objectives and Information Requirements) are continually applied at each step of Global Analysis and a final Scope Memorandum is prepared which explains what is in scope, what is out-of-scope, and why.

2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL

Figure 2.1-1 Step Overview
Figure 2.1-2 Step Products
Figure 2.1-3 Step Components

2.1.1 PURPOSE

2.1.2 COMPONENTS/TERMS

2.1.2.1 Entity
2.1.2.2 Entity Type
2.1.2.3 Substantive Entity Type
2.1.2.4 Substantive Sub-Entity Type
2.1.2.5 Classifying Entity Type
2.1.2.6 Classifying Sub-Entity Type
2.1.2.7 Relationship
2.1.2.8 Substantive Relationship
2.1.2.9 Classifying Relationship
2.1.2.10 Entity Relationship Diagram (ERD)
2.1.2.11 Substantive ERD
2.1.2.12 Classifying ERD
2.1.2.13 Cardinality
2.1.2.14 Attribute
2.1.2.15 Attribute Value

2.1.3 INPUT PRODUCTS

2.1.3.1 Conceptual Entity Types
2.1.3.2 Scope Memorandum
2.1.3.3 Relevant Business Documents

2.1.4 GENERAL PROCEDURES

2.1.4.0 DO's and DON'Ts
2.1.4.1 Study Conceptual Entity Types and Scope Memorandum
2.1.4.2 Develop Initial Entity Relationship Model
2.1.4.3 Identify Initial Set of Substantive Entity Types and Sub-Types
2.1.4.4 Evaluate and Revise Initial Set of Substantive Entity Types and Sub-types
2.1.4.5 Briefly Define Each Substantive Entity Type and Sub-type
2.1.4.6 Identify Substantive Relationships
2.1.4.7 Develop Initial Substantive ERD
2.1.4.8 Evaluate and Revise Substantive ERD
2.1.4.9 Define Substantive Relationships
2.1.4.10 Determine Cardinalities in Substantive ERD
2.1.4.11 Identify Classifying Entity Types and Sub-Entity Types for each Substantive Entity Type
2.1.4.12 Develop Initial Classifying ERDs
2.1.4.13 Define Each Classifying Entity Type and Sub-type
2.1.4.14 Evaluate and Revise Initial Classifying ERDs
2.1.4.15 Review and Revise Classifying Entity Type and

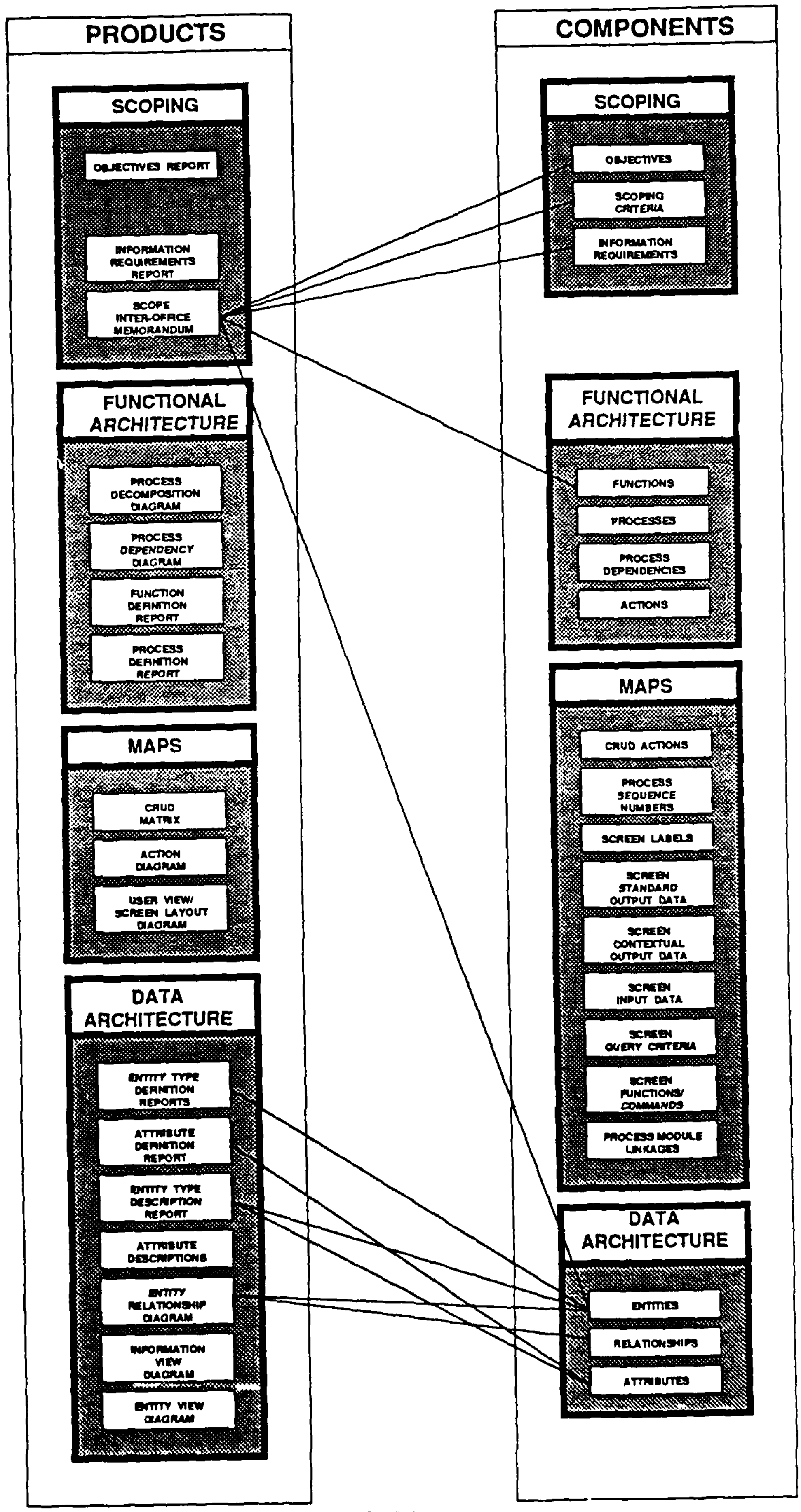


FIGURE 2.1-1
STEP OVERVIEW

PRODUCTS / 2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. STUDY CONCEPTUAL ENTITY TYPES AND SCOPE MEMO			R									R				R		
2. DEVELOP INITIAL ENTITY RELATIONSHIP MODEL																C		
3. IDENTIFY INITIAL SET OF SUBSTANITVE ENTITY TYPES AND SUB-TYPES												C						
4. EVALUATE AND REVISE INITIAL SET OF SUBSTANTIVE ENTITY TYPES AND SUB-TYPES												U						
5. BRIEFLY DEFINE EACH SUBSTANTIVE ENTITY TYPE AND SUB-TYPE												U						
6. IDENTIFY SUBSTANTIVE RELATIONSHIPS												U				U		
7. REVISE INITIAL SUBSTANTIVE ERD												U				U		
8. EVALUATE AND REVISE SUBSTANTIVE ERD												U				U		
9. DEFINE SUBSTANTIVE RELATIONSHIPS												U				U		
10. DETERMINE CARDINALITIES IN SUBSTANTIVE ERD												U						
11. IDENTIFY CLASSIFYING ENTITY TYPES AND SUB-ENTITY TYPES FOR EACH SUBSTANTIVE ENTITY TYPE												U						
12. DEVELOP INITIAL CLASSIFYING ERD																C		
13. DEFINE EACH CLASSIFYING ENTITY TYPE AND SUB-TYPE												U						
14. EVALUATE AND REVISE INITIAL CLASSIFYING ERD																U		
15. REVIEW AND REVISE CLASSIFYING ENTITY TYPE AND SUB-TYPE												U						
16. IDENTIFY ATTRIBUTES FOR EACH ENTITY TYPE													C	C	C			
17. EVALUATE ATTRIBUTE ASSIGNMENTS TO ENTITIES														U				

FIGURE 2.1-2
STEP PRODUCTS

COMPONENTS / 2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. STUDY CONCEPTUAL ENTITY TYPES AND SCOPE MEMO			R														R	R	
2. DEVELOP INITIAL ENTITY RELATIONSHIP MODEL																	C	C	
3. IDENTIFY INITIAL SET OF SUBSTANITVE ENTITY TYPES AND SUB-TYPES																	C		
4. EVALUATE AND REVISE INITIAL SET OF SUBSTANTIVE ENTITY TYPES AND SUB-TYPES																	U		
5. BRIEFLY DEFINE EACH SUBSTANTIVE ENTITY TYPE AND SUB-TYPE																	U		
6. IDENTIFY SUBSTANTIVE RELATIONSHIPS																	U		
7. REVISE INITIAL SUBSTANTIVE ERD																	U		
8. EVALUATE AND REVISE SUBSTANTIVE ERD																	U		
9. DEFINE SUBSTANTIVE RELATIONSHIPS																	U		
10. DETERMINE CARDINALITIES IN SUBSTANTIVE ERD																	U		
11. IDENTIFY CLASSIFYING ENTITY TYPES AND SUB-ENTITY TYPES FOR EACH SUBSTANTIVE ENTITY TYPE																	U		
12. DEVELOP INITIAL CLASSIFYING ERD																	C		
13. DEFINE EACH CLASSIFYING ENTITY TYPE AND SUB-TYPE																	U		
14. EVALUATE AND REVISE INITIAL CLASSIFYING ERD																	U		
15. REVIEW AND REVISE CLASSIFYING ENTITY TYPE AND SUB-TYPE																	U		
16. IDENTIFY ATTRIBUTES FOR EACH ENTITY TYPE																			C
17. EVALUATE ATTRIBUTE ASSIGNMENTS TO ENTITIES																			U

FIGURE 2.1-3
STEP COMPONENTS

2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL

2.1.1 PURPOSE

The entity relationship (E-R) model is a key analytical device for describing and understanding systems of any kind in fundamental terms. E-R modeling accepts as a fundamental premise that any system -- an ecosystem, biological system, mechanical system, social system, transportation system, business system, information system, etc. -- can be defined and understood through the use of two simple concepts: entities and relationships. All things, tangible and intangible, within the scope of interest of the system can be thought of as entities; and, in forming particular relationships which each other, the entities "interact" to form a system. Therefore, in applying this technique, we have but two types of objects to manipulate: entity types and relationship types.

In this step, the E-R modeling technique is applied to the task of defining the DLA business system from an information management perspective. For instance, if an entity is a person, place, thing, concept, or event in which DLA has a business interest, then having information about the entity is critical to DLA. The E-R modeling technique is extremely useful in arriving at the correct logical design of automated databases, fulfilling an objective of information systems design to maximize the sharing of data and to minimize data redundancy among all information systems of the organization. As a model of a logical database, the entity relationship model is enriched with attributes. An attribute is a characteristic of an entity type or a relationship type. Attributes become the data elements of the database; they are defined in the data dictionary. Thus, the attributed E-R model provides the initial logical data model for the system, or our first view of the structure and content of the database required by the processes we want to automate.

In designing information systems, the purpose of the attributed E-R model is to provide a detailed, logical structure (or architecture) of the data base, a structure which is: a) a highly stable representation of the data requirements of the business system because it directly reflects the essential nature of the business; b) a rigorous description from functional proponents of an information system of their data base requirements which can be tracked systematically to the resulting physical data base design; c) independent of any physical implementation of it, i.e., the logical structure (model) is easily converted to any custom developed or COTS data base management system; d) flexible to changing business needs because it permits rapid determination of the data needs of any business function and isolates the impact of change to specific areas of the data base; and e) the key to systems integration because it strongly encourages the sharing of data by any number of different business functions.

2.1.2 COMPONENTS/TERMS

The following terms are defined from an information management and information engineering perspective.

2.1.2.1 Entity: A person, place, concept, thing, or event about which the enterprise requires information. It is also called entity instance or entity occurrence.

2.1.2.2 Entity Type: The collection of all the entities to which a specific definition, common attributes and relationships apply.

2.1.2.3 Substantive Entity Type: An entity type which is meaningful and relevant to the enterprise and whose purpose is not to classify or categorize any other entity type.

2.1.2.4 Substantive Sub-Entity Type: A substantive entity type depends on the existence of the entity type to which it is subordinate. Being subordinate means that, whenever 'A' equals the entity type and 'B' equals the Sub-entity type, it is always true that 'A' is composed of 'B'.

2.1.2.5 Classifying Entity Type: An entity type whose single purpose is to classify or categorize substantive entity types or substantive sub-entity types.

2.1.2.6 Classifying Sub-Entity Type: A classifying entity type which depends on the existence of a classifying entity type or on another classifying sub-entity type. Classifying sub-entity types permit unlimited "levels" of hierarchical classification.

2.1.2.7 Relationship: A reason of business relevance to the enterprise why entities from one or two entity types may be associated. Relationships between entities of the same entity type are called recursive relationships.

2.1.2.8 Substantive Relationship: A relationship between entities of substantive entity types or between substantive sub-entity types. There can be multiple types of relationships between the same entity types.

2.1.2.9 Classifying Relationship: A relationship between a classifying entity type or classifying sub-entity type and any other entity type.

2.1.2.10 Entity Relationship Diagram (ERD): A diagram, or model, which graphically depicts all entity types, sub-entity types, and relationship types determined to be within the scope of the business area of interest.

2.1.2.11 Substantive ERD: An entity relationship diagram (ERD) which contains only substantive objects (an object is either an entity type or a relationship type).

2.1.2.12 Classifying ERD: An entity relationship diagram (ERD) which contains one substantive entity type only; all other objects are classifying objects relevant to the classification of the single substantive entity type in the ERD.

2.1.2.13 Cardinality: The number of pairings in which an Entity may participate under a Relationship. Cardinality occurs in five forms: zero-to-one, one-to-one, zero-to-many, one-to-many, and many-to-many. The zero-to-one and zero-to-many cardinalities indicates that the relationship between the entity types is optional; for all other case, the cardinality indicates that the relationship is mandatory.

2.1.2.14 Attribute: A type of fact about an entity type or sub-entity type. Attributes are also call data elements.

2.1.2.15 Attribute Value: A quantitative or descriptive characteristic of an entity (i.e., an instance of an entity type). For example, if "employee salary" is an attribute, then "$400 per week" may be the attribute value of one of the instances of an entity type having "employee salary" as one of its attributes.

2.1.3 INPUT PRODUCTS

The products which are used as input to the process of developing and attributing the entity relationship model are as follows.

2.1.3.1 Conceptual Entity Types: These provide guidance as to broad conceptual business categories from which entity types are derived. Reference section 1.3 output products for an example.

2.1.3.2 Scope Memorandum: This provides the boundary of relevance for the ERDs. Reference section 1.5 output products for an example.

2.1.3.3 Business Documents: These include documents of various kinds which can be used as authoritative sources for identifying and defining entities, relationships, and attributes. Examples are mission statements, brochures, pamphlets, regulations and other policy documents, functional descriptions of existing information systems.

2.1.4 GENERAL PROCEDURES

The general sequence of tasks required to develop the attributed entity relationship model are described in order in the following paragraphs. Although this is the normal sequence, it is very important to keep in mind that this process is iterative in nature. Each succeeding step usually reveals an oversight in a preceding step, and acts as a natural validation step even when it is not explicitly intended for validation. Thus, a temporary return to previous steps in altogether proper and normally occurs frequently. Preceding the first procedural step is a paragraph which outlines the DO's and DON'Ts associated with the dynamic process of data modeling.

2.1.4.0 DO's and DON'Ts

In addition to the rules of a technical nature provided, this section provides guidance for managing the process of developing the attributed entity relationship model and ensuring that it is successfully completed. The process has all the challenges of any endeavor requiring cooperation among peers and is an exercise in a group dynamics. Thus, simply following the technical rules of data modeling is not enough to ensure success. The following "do's and don'ts", derived from data modeling projects in DLA, should be as carefully attended to by data modeling project teams as are the technical rules.

<u>DO</u>	<u>DON'T</u>
a. Bring Management into the process at the beginning and periodically throughout to ensure their continuing support and understanding.	a. Minimize the involvement of management in the process.
b. Obtain broad participation from knowledgeable representatives of each functional area of the organization expected to benefit from the implemented system. Have core team of permanent members, supplemented with "experts" brought in when needed to cover specific topics. Core team should have 3-6 members, depending on scope of the model.	b. Try to accomplish the data model with a narrow focused group of too few who will have traditional biases, nor with too many who will slow the process a with unnecessary "fine tuning" at every turn.
c. Be open minded; look for insights into new opportunities for improving the way business is done and information is used.	c. Be too wedded to the traditional view of the business or its file systems.
d. Have an objective facilitator whose two primary skills are data modeling techniques and consensus building. Facilitators should not make decisions; they should suggest	d. Let one voice dominate discussion and decision-making.

solutions and lead the functional team to making its own decisions.

e. Allow "engineering license" in the beginning of the effort to allow thoughts to flow freely and to get "off the block". Insist on rigor only after you go into the first validation step of the initial E-R model.	e. Be rigid in the beginning with the strict rules of data modeling; it will inhibit the process of free (albeit facilitated) thought needed to bring a lot of ideas to the table to work with. Early rigidity will slow the process and diminish the motivation of the functional representatives.
f. Get the facts.	f. Base decisions on conjecture or opinion unless there is no choice.
g. Table all issues that are discussed up to 15 minutes and not resolved. Most of them will be quickly resolved later once further insight about other aspects of the model is obtained.	g. Let one issue drag on beyond 15 minutes; it will usually be of interest only to the two people who disagree, while everyone else wants to proceed; besides, experience shows that 90 percent of all issues have obvious solutions after you wait a day or two and further understanding about other parts of the model is clear to all.
h. Review technical decisions of previous day at beginning of each day. Take 15-20 minutes to do this. It serves as a "warm start" for a groggy group and a good transition.	h. Go too far without a review. It is important for the group to keep in perspective what they are doing, and not "lose the forest for the trees."
i. Take seriously the defining of entity types, relationship types, and attributes. This step, although some think is tedious, is essential. Without it, you have only names and diagrams which, however useful, are subject to wide interpretation. Only with their associated (and carefully defined) definitions do you bring rigor to the model and eliminate much room for misunderstanding and oversight.	i. Neglect the work of defining the objects of the model.
j. Keep clear view of what's been done to date, and what is still left to do. The team must know specifically where it is in the process; besides the project management aspect, this awareness is important for motivation.	j. Let the process "swim." Stay very structured in the day-to-day objectives and progress, and keep project perspective as well as technical perspective.

k. Use a CASE tool and keep its database up to date daily. It is not always required to print out its contents; in fact you should avoid this as paper copies are very time consuming to keep current.

k. Use the CASE tool until you are ready to become technically structured, usually after you have obtained reasonable consensus on the initial substantive ERD which you have drawn on a white board.

l. Do a comprehensive review of the E-R Model with as many functional representatives who participated as possible. Don't go over all the attributes, but do go over the ERD and the cardinalities. Very important for all to come away with a feeling that they have a good product. Invite first line managers.

l. Declare you're finished until a comprehensive review of the model is done in front of the whole group. This is best done by the lead facilitator with help from the core team members.

2.1.4.1 Study Conceptual Entity Types and Scope Memorandum

The team reexamines and discusses the conceptual entity types from the enterprise model and, as a group, reaffirms the scope of the project from both a functional and data standpoint. This is simply a general discussion to ensure there is a common understanding of what to include and what to exclude. The scope of the data model can, in a data-oriented approach, be larger than the functional scope but can never be less than it.

2.1.4.2 Develop Initial Entity Relationship Model

A person or two persons schooled in entity relationship modeling techniques will take one or two days to develop an initial E-R model to be used as a working draft. This model is used to brief the group initially on what the final E-R model might look like. It is not to be taken too seriously at this time; it serves as a starting point to prevent time delays which often occur when a larger gfoup tries to start the initial model from scratch. It should be briefed to the whole team once, then the team proceeds to the next step. This is an optional step. If not done, simply go to the next step.

2.1.4.3 Identify Initial Set of Substantive Entity Types and Sub-Types

Identify candidate entity types for the entire scope of the business area being analyzed, using as a starting point the conceptual entity types determined previously to be within scope. Do this by focusing on the primary sources of business entities: the products of the business area, the resources required by the business area to produce its products, the agents which cause the generation of the products, and the customers of the products. For each substantive entity type (which should have a meaningful existence, independent of other entity types) identify the sub-entity types. To do this, ask what types of things is

each entity type composed of. Some entity types will have no sub-entity types; instead, they will have only attributes. Attributes are identified in a later step of this procedure.

Work as a whole team together on this task.

2.1.4.4 Evaluate and Revise Initial Set of Substantive Entity Types and Sub-types

Apply the rules presented below for evaluating substantive entity types and sub-entity types. Revise entity types and sub-entity types as required. Work as a whole team together on this task.

2.1.4.5 Briefly Define Each Substantive Entity Type and Sub-type

Write one to three sentences of definition for each substantive entity type or sub-entity type. Divide the objects and assign to pairs of team members.

2.1.4.6 Identify Substantive Relationships

Begin by constructing a matrix of all substantive entity types and sub-types on both the vertical and horizontal axes. They are listed down the left side of the matrix in the same order as they are listed across the top. List all sub-entity types immediately after the entity type of which they are subordinate.

For each cell in the matrix, determine whether there is a relationship of relevance between the two entity types which intersect there. If there is, put a number in the cell and name it by writing a sentence with one entity type as the subject of the sentence, the other entity type as the object of the sentence, and the relationship is the verb or verb phrase of the sentence. These verb phases will later be written on the ERD as the relationship name. Remember, more than one type of relationship can exist between the same two entity types.

A couple of team members can establish the matrix, then filling in the cells of a subset of the matrix can be assigned to pairs of team members working simultaneously with other pairs.

2.1.4.7 Revise Initial Substantive ERD

Here, the team decides whether the initial ERD is worth revising or that it should simply start again using the group of sentences from the previous step. In any case, the sentences are the rigorous source for the ERD. The team can decide to break up the entity-entity matrix and associated sentences into several subject area views (or partial ERDs) of the global ERD to reduce complexity. The simplest any substantive ERD should be is: one substantive entity type, all sub-entity types for that entity type, and all other entity types which have relationships with the primary entity type of the ERD. After deciding which substantive entity type to make the focus of the ERD, draw the ERD, naming all the entity types and relationships on the diagram according to the naming conventions. Do this for each substantive entity type. The whole team works on this activity together.

2.1.4.8 Evaluate and Revise Substantive ERD

Use the rules provided below for evaluating the ERD, and revise as necessary. Accomplish this activity as a whole group together.

2.1.4.9 Define Substantive Relationships

In one to three sentences, describe what the relationship (verb phrase) means in relation to the entity types it serves to relate. Divide this activity among pairs of team members.

2.1.4.10 Determine Cardinalities in Substantive ERD

Determine the cardinalities of each relationship on the ERD. This is usually quite intuitive by the functional representatives of the team. Rarely does any special research need to be done.

The whole team should work together on this.

2.1.4.11 Identify Classifying Entity Types and Sub-Entity Types for each Substantive Entity Type

A classifying entity type is the one at the top of a hierarchy of set of classifying entity types. All entity types subordinate to the one at the top level are the classifying sub-entity types.

Work separately with each substantive entity type, classifying its entities into smaller groups. Think of all the different ways in which the Entities might have to be sorted for processing or management reporting. For example, how can all the occurrences of CARs be grouped? CARs can be grouped by FUEL SYSTEM, FUEL TYPE, ENGINE TYPE, etc. The processing and/or reporting for FUEL SYSTEM information would be different from that of ENGINE TYPE information.) In the ERD, add a new entity type with a name that describes the classifying attribute (these usually end with the word TYPE). Add the relationship from the entity type to the classifying entity type using the relationship names "classifies/is-classified-by" in the proper order.

For each classifying entity type, add 3 attributes: the code, a name for the code and text describing the code. In a physical implementation, these classifying entity types will more than likely become code tables in the database design.

Think of all possible 'kinds-of' or 'types-of' that are included within the Entities. For each Classifying Attribute, identify all of its possible legal values. (E.g., What kinds or types of CARs are in each smaller group of CARs? The possible FUEL SYSTEMs of CARs would be FUEL INJECTION and CARBURATION; the possible FUEL TYPEs of CARs would be DIESEL and GAS; the possible ENGINE TYPEs of CARs would be ROTARY and PISTON.) Determine if any of the values need to be furthered classified to be meaningful or useful for the scope of the project. (E.g., For FUEL INJECTION, CARBURATION, DIESEL, GASOLINE, ROTARY, and PISTON, do we care about any more details?) In other words, do we need to identify a smaller population of the larger population? If we do, then

we have identified a new classifying entity type that has a relationship to another classifying entity type.

Repeat above steps until the values can not or should not be further classified, based on the scoping criteria or exhaustiveness of the entity type. (E.g., If we do care about more details, what more do we want to know about ROTARY ENGINEs, for example NUMBER OF ROTORS; what more do we want to know about GASOLINE FUEL TYPEs, for example GASOLINE GRADEs. Then identify the values for each, for example TWO ROTORS, THREE ROTORS and UNLEADED GASOLINE, LEADED GASOLINE.)

Divide the substantive entity types to be classified evenly among the group, but work in pairs.

2.1.4.12 Develop Initial Classifying ERDs

a) Create a separate ERD for each substantive entity type, preferably with the substantive entity type in the middle. The classifying and sub-entity types should surround the substantive entity type with their appropriate relationships.

b) Enter cardinalities in each ERD. All should be one-to-many.

Divide this exercise evenly among the team members; however, working in pairs is more effective than working alone on an ERD.

2.1.4.13 Define Each Classifying Entity Type and Sub-type

Write one to three sentence descriptions of each classifying entity type or sub-entity type which embellishes the entity type name sufficiently to understand what the classification really means. Divide the entity types and sub-types evenly among team members.

2.1.4.14 Evaluate and Revise Initial Classifying ERDs

Apply the rules for evaluating a classifying ERD, and revise the ERD as required. Do this exercise as a whole group together.

2.1.4.15 Review and Revise Classifying Entity Type and Sub-type Definitions

Revise the definitions in light of all that has been learned to date. Often, the first set of definitions prove inadequate. With new perspective, the analysts realize the shortcomings and revise accordingly. Each team member should examine all definitions and offer comments to the authors.

2.1.4.16 Identify and Define Attributes for each Entity Type

Identify the entity identifier, the entity name, the entity description, and all other non-identifier attributes that would be associated with the entity. Remember, we only want to identify the attributes which are relevant, i.e., that are within the project scope. We only want their names for now. Enter all attributes of every entity type, both substantive and classifying entity and sub-entity types.

Normally, the substantive entity types and sub-entity types will have at least an identifying attribute and a text attribute for a description plus more, sometimes much more. Attributes are brainstormed first, using any name that comes to mind. After a number of them are identified, the team pauses and applies the naming conventions to each attribute identified. From that point forward, any additional attributes identified are added with naming conventions followed.

Alternatively, the team can begin its attribute identification exercise by pulling them from existing file structures, data dictionaries, or from forms and reports currently in use, still applying the naming conventions as required.

Brief but meaningful definitions for each attribute should be done at this time.

This task should be divided among team members, with each member or pair of members responsible for defining a set of attributes that seem to be closely related.

2.1.4.17 Evaluate Attribute Assignments to Entities

Evaluate the correctness of assignment of attributes to entity types accomplished in the previous step by applying the rules for evaluation of attribute assignments. Revise accordingly.

2.1.5 OUTPUT PRODUCTS

The output products of this step of the methodology are listed below.

2.1.5.1 Entity Relationship Diagrams (ERD) (Figure 2.1.7-1)

One ERD presents the entire model showing all entity types and relationship types, with cardinalities. Also, each substantive entity type is displayed as a separate subject area, showing its relationships to other entity types.

2.1.5.2 Entity Type Definitions (Figure 2.1.7-2)

2.1.5.3 Relationship Type Definitions

2.1.5.4 Attributed Entities (Figure 2.1.7-2)

2.1.5.5 Attribute Definitions (Figure 2.1.7-3)

2.1.6 RULES

The following rules are expressed as steps in an evaluation procedure and are invoked by those steps in the general procedure above which call for evaluation. In addition to being applied as a formal step in the procedure, the rules should be applied dynamically by the team as it develops the different output products named above.

2.1.6.1 Evaluation of Substantive Entity Types and Sub-Types

a. Confirm the substantive nature of the entity types.

All entity types are of two types, substantive and classifying. Substantive entity types are the object of classification, but they classify nothing. Substantive entities are the actual persons, places, concepts, things, or events which the enterprise needs in order to fulfill its mission, regardless of how the enterprise wishes to classify them. A substantive entity type cannot classify another entity type.

b. Confirm uniqueness of each entity type.

For both the substantive entity types and the sub-entity types, each must be truly unique from all others identified.

To be a unique entity type, one must confirm that no other entity type in the list of entity types is likely to have an identical, or nearly identical set of attributes. Even though entity attribution has not yet been done, the determination of the likelihood of two entity types having nearly identical attributes is ascertained intuitively at this stage. Intuition is proved right or wrong during the rigorous attribution stage. Remember, just because two entities can be classified differently does not necessarily mean the two entities are of different entity types as well. For example, the entity type CUSTOMER could be divided into two entity types: FEMALE CUSTOMER and MALE CUSTOMER. This would be perfectly alright if there were different kinds of data kept about female customers than was kept about male customers. But if the same kind of information is kept about both, then one entity type, CUSTOMER, is sufficient. If the enterprise wishes, for example, to keep statistics on the buying profile of its male customers versus its female customers, this would not affect the entity type CUSTOMER, but it would generate the need for a classifying entity type called CUSTOMER SEX. Thus, instead of having two substantive entity types called FEMALE CUSTOMER and MALE CUSTOMER, we have one substantive entity type called CUSTOMER, and one classifying entity type called CUSTOMER SEX.

c. Confirm sufficiency of Sub-entity types.

Substantive sub-entity types are legitimate if: the substantive entity type is composed of the substantive sub-entity type, and more than one substantive sub-entity (instance) can exist for the same substantive entity (instance).

2.1.6.2 Evaluation of Substantive ERD

a. Ensure all relationship identified in the entity/entity matrix have been captured in the subject area ERDs and the global ERD. Every entity type must participate in at least one relationship with another entity type.

b. Confirm absence of all redundant relationship types.

A redundant relationship type is one which associates two entity types directly which are already associated indirectly through mandatory relationships they have with a common (third) entity type. Thus, if entity type A is related to entity type B, and entity type B is in turn related to entity type C, then if a conceptual relationship exists between A and C because of A's relationship to B, then the ERD need not show a direct relationship between A and C, since it already exists through their mutual relationship to B.

c. Ensure naming conventions for entity types and relationship types are followed.

2.1.6.3 Evaluation of Classifying ERD

a. Ensure only the lowest level of classifying entity in a hierarchy of classifying entity types forms a relationship with a substantive entity type.

b. Not all substantive entities need to be classified, i.e., form relationships with classifying entity types. Should there be certain substantive entity types which have not been "classified" at all, ask once more if there is a business need to classify the substantive entity type.

c. Confirm that the classifying entity type forms the relationship with the right substantive entity type and not its associated substantive sub-entity type, or vice-versa.

d. Re-examine the cardinalities of every relationship and confirm their correctness.

e. Legal Values

Do not identify the currently used codes for a classifying attribute; instead identify the English name of each legal value, as used within DLA, its clients, or its contractors.

f. Why Classify?

There must be a business reason which justifies classification that a) falls within the scope for classifying the Conceptual Entity Type, and b) is based on management reporting or control processing.

g. When to Further Classify

To determine if a Legal Value can be further classified, examine the existing documentation to ascertain if the legal value names are used

alone, or are always used in conjunction with one or more other names. In other words, ask if the legal value name must be qualified by some other name(s) to be meaningful or useful. If so, it probably requires further sub-classifying.

h. When to Stop Classifying

Not all legal values can or should be further classified. Of those that are, not all are classified the same number of times. Do not even attempt to classify to the same degree. Stop trying to sub-classify whenever the result provides no additional added value from a business standpoint. Also, any candidate classifying entity type which has only two possible instances which translate to "on/off" or "yes/no" should be converted to classifying attributes within the substantive entity type they classify.

i. Mutual Exclusivity

Every legal value within a set of attribute values for the identifier of a given classifying entity type must be mutually exclusive.

j. Exhaustiveness

The total legal values in a set must be exhaustive. Attempt to completely exhaust/define the classifying entity type by identifying all of the legal values of its identifier key.

k. Ensure naming conventions for entity types and relationship types are followed.

2.1.6.4 Evaluation of Attribute Assignments and Names

a. Confirm existence of identifying (key) attributes in each entity type of all kinds (substantive, classifying, and all types of sub-entities).

b. Confirm absence of all other "keys" but the identifying attributes for any entity type.

c. Confirm that the identifying attribute of any kind of sub-entity type contains the identifying attribute of its "parent" entity type.

d. Multi-valued Attributes: An attribute may have only one value at a time. However, when more than one value of an attribute can describe an entity at the same time, the attribute is said to be multi-valued.

For example, an E-R model may contain information on the languages an employee speaks. If J. Doe speaks French, German, and Spanish, these are different values for the attribute Language Spoken. In such case, the original attribute Language Spoken must be converted to an entity type. The new entity type includes French, German and Spanish as entities.

e. Functional Dependency: By definition, an attribute is a fact about an entity type. One attribute, therefore cannot describe another. If an attribute appears to do so, it must be redefined as an entity type.

For example, consider the previous example again. Language Spoken is an attribute of EMPLOYEE, and it is necessary to record the degree of fluency and college experience in each language. Degree of Fluency and College Experience in a language are attributes that describe the attribute Language Spoken, not the entity type EMPLOYEE.

Because the rules do not permit on attribute to describe another, LANGUAGE SPOKEN must be redefined as an entity type including Degree of Fluency and College Experience among its attributes.

f. An attribute may describe only one entity type. If an attribute appears to describe two entity types, a relationship associates the entity types and the attribute belongs with the relationship (associative entity type).

g. Classifying entities have only three attributes: entity identifier, name, and description. Include a fourth -- effective date -- if necessary.

2.1.6.5 Confirm Resolution of All Outstanding Issues

Ensure that all issues recorded during any activity of the modeling exercise have been answered, and the answer incorporated into the model, if required.

2.1.7 EXAMPLES

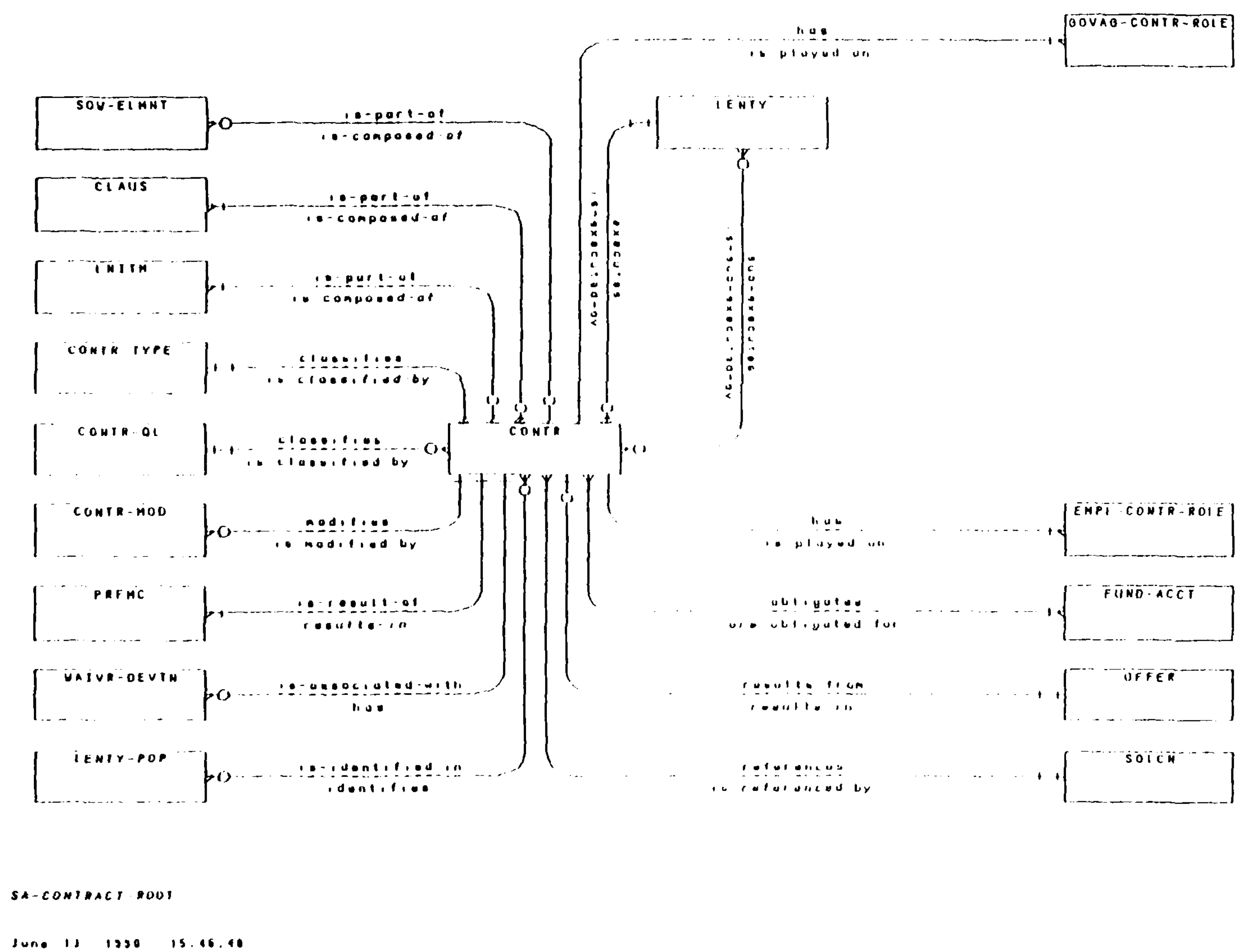


Figure 2.1.7-1 Subject Area Entity Relationship Diagram

Member Type
Member Name Attribute Name & Contents

ENTITY
EN-CONTR

ALIAS
CATALOGUE
CONCEPTUAL
CONTRACTOR PROFILE
ENTITY
SUBSTANTIVE
DEFINITION
A contract is a mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.
DESCRIPTION
In addition to bilateral instruments, contracts include (but are not limited to) job orders or task letters issued under basic order agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
Contract
SOURCE
Team member knowledge
FAR subpart 1.1
IDENTIFIED BY
CT-CONTR-NBR
MULTI-ASSOCIATION TO
MULTI-ATTRIBUTES ARE
ONE-ASSOCIATION TO
ONE-ATTRIBUTES ARE
CT-CONTR-CLOSE-DATE

CT-CONTR-DOLR-AMT

CT-CONTR-DRAG-RATE

CT-CONTR-EFCTV-AWARD-DATE

CT-CONTR-PAYMT-TERM-TEXT

CT-CONTR-STAT

CT-CONTR-OBSG-DOLR-AMT
SEE
SUB-ENTITIES ARE
EN-CONTR-MOD

EN-CLAUS

EN-SOW-ELMNT

Figure 2.1.7-2 Entity Type Definition

Member Type
Member Name Attribute Name & Contents

CONTEXT-ATTRIBUTE
CT-CONTR-CLOSD-DATE ALIAS
CATALOGUE
CONTEXT ATTRIBUTE
CONTRACTOR PROFILE
DEFINITION
Date the contract was closed.
DESCRIPTION
Date of administrative closure, indicating final payment has been made.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
Contract Closed Date
SOURCE
Contracting officer.
DATA-STEWARD
DECIMAL-PLACES
DERIVATION-RULES
EDITING-RULES
FORMAT
LEGAL-VALUES
LENGTH
RANGES
TRANSFORMATIONS
USAGE-RULES
SEE

CONTEXT-ATTRIBUTE
CT-CONTR-DOLR-AMT ALIAS
CATALOGUE
CONTEXT ATTRIBUTE
CONTRACTOR PROFILE
DEFINITION
Estimated total dollar amount for the contract.
DESCRIPTION
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
Contract Dollar Amount
SOURCE
Contracting officer.
DATA-STEWARD
DECIMAL-PLACES
DERIVATION-RULES
EDITING-RULES
FORMAT
LEGAL-VALUES
LENGTH
RANGES

Figure 2.1.7-3 Attribute Definitions

2.1 APPENDIX A - DETAILED IEW PROCEDURES

2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL

2.1.1 PURPOSE

2.1.2 COMPONENTS/TERMS

2.1.3 INPUT PRODUCTS

2.1.4 GENERAL PROCEDURES

2.1.4.1 STUDY CONCEPTUAL ENTITIES AND SCOPE MEMORANDUM

2.1.4.1.1 LOGON TO PLANNING WORKBENCH
2.1.4.1.2 SELECT "ENCYCLOPEDIA LIST" FUNCTION
2.1.4.1.3 IDENTIFY CURRENT ENCYCLOPEDIA AND OPEN BY:

2.1.4.1.3.1 SELECTING THE ENCYCLOPEDIA'S NAME FROM THE LIST
2.1.4.1.3.2 PULLING DOWN THE "EDIT" MENU
2.1.4.1.3.3 SELECTING THE "OPEN" OPTION FROM THE "EDIT" MENU
2.1.4.1.3.4 CLOSE THE "ENCYCLOPEDIA LIST" WINDOW

2.1.4.1.4 PULL DOWN THE "DISPLAY" MENU
2.1.4.1.5 SELECT "THE ENTITY MODEL" (SEE FIGURE A.2.1.1)
2.1.4.1.6 SELECT "THE ENTITY MODEL" AND SELECT "PROCEED"

2.1.4.2 DEVELOP INITIAL ENTITY RELATIONSHIP MODEL

2.1.4.2.1 PERFORM STEPS IN 2.1.4.1
2.1.4.2.2 TO ADD AN ENTITY:

2.1.4.2.2.1 PULL DOWN THE "ADD" MENU
2.1.4.2.2.2 ENTER NAME OF NEW ENTITY AND SELECT "ENTITY" AND "FUNDAMENTAL" BLOCKS AND SELECT "PROCEED"

2.1.4.2.3 TO ADD A RELATIONSHIP

2.1.4.2.3.1 ENSURE THAT BOTH ENTITIES TO BE INVOLVED IN THE NEW RELATIONSHIP ARE NOT CURRENTLY SELECTED
2.1.4.2.3.2 CLICK THE MOUSE DOWN ON THE SOURCE ENTITY (THE 'FROM' ENTITY) AND, KEEPING THE BUTTON DOWN, DRAG THE CURSOR ACROSS THE SCREEN TO THE TARGET ENTITY (THE 'TO' ENTITY). RELEASE THE BUTTON WHEN THE CURSOR RESIDES IN THE TARGET ENTITY.
2.1.4.2.3.3 ENTER BOTH THE 'TO' NAME OF THE RELATIONSHIP AND THE 'FROM' NAME OF THE RELATIONSHIP, AND SELECT "PROCEED"

2.1.4.3 IDENTIFY INITIAL SET OF SUBSTANTIVE ENTITY TYPES AND SUB-TYPES

2.1.4.3.1 PERFORM STEPS IN 2.1.4.2

2.1.4.4 EVALUATE AND REVISE INITIAL SET OF SUBSTANTIVE ENTITY TYPES AND SUB-TYPES

2.1.4.4.1 PERFORM STEPS IN 2.1.4.2
2.1.4.4.2 TO DELETE AN ENTITY:

2.1.4.4.2.1 SELECT THE ENTITY (AND ONLY THE ENTITY) YOU WISH TO DELETE
2.1.4.4.2.2 PULL DOWN THE "EDIT" MENU
2.1.4.4.2.3 SELECT THE "DELETE" FUNCTION
2.1.4.4.2.4 SELECT "PROCEED"

2.1.4.4.3 TO DELETE A RELATIONSHIP:

2.1.4.4.3.1 ENSURE THAT THE RELATIONSHIP HANDLES ARE SHOWN:

2.1.4.4.3.1.1 PULL DOWN THE "ENTITY DIAGRAM" MENU
2.1.4.4.3.1.2 SELECT THE "SHOW HANDLES" FUNCTION IF AVAILABLE

2.1.4.4.3.2 SELECT THE RELATIONSHIP (AND ONLY THE RELATIONSHIP) YOU WISH TO DELETE BY CLICKING ON ITS HANDLE
2.1.4.4.3.3 PULL DOWN THE "EDIT" MENU
2.1.4.4.3.4 SELECT THE "DELETE" FUNCTION
2.1.4.4.3.5 SELECT "PROCEED"

2.1.4.5 BRIEFLY DEFINE EACH SUBSTANTIVE ENTITY TYPE AND SUB-TYPE

2.1.4.5.1 PERFORM STEPS IN 2.1.4.1
2.1.4.5.2 DESELECT ANY SELECTED ENTITIES BY:

2.1.4.5.2.1 PULLING DOWN THE "SELECT" MENU
2.1.4.5.2.2 SELECTING THE "DESELECT ALL" FUNCTION

2.1.4.5.3 SELECT THE ENTITY WHOSE DESCRIPTION YOU WOULD LIKE TO ADD OR MODIFY
2.1.4.5.4 PULL DOWN THE "DISPLAY" MENU
2.1.4.5.5 SELECT THE "DETAILS" FUNCTION
2.1.4.5.6 USING THE ARROW KEYS AND THE MOUSE, POSITION THE CURSOR WITHIN THE DESCRIPTION FIELD AND ENTER ADDITIONS/CHANGES
2.1.4.5.7 TO SAVE THE NEW DESCRIPTION:

2.1.4.5.7.1 PULL DOWN THE "EDIT" MENU
2.1.4.5.7.2 SELECT THE "SAVE AND CLOSE" FUNCTION

2.1.4.6 IDENTIFY SUBSTANTIVE RELATIONSHIPS

2.1.4.6.1 PERFORM STEPS IN 2.1.4.1
2.1.4.6.2 PERFORM STEPS IN 2.1.4.2.3
2.1.4.6.3 TO FURTHER DESCRIBE A RELATIONSHIP:

2.1.4.6.3.1 SELECT THE DESIRED RELATIONSHIP AS DESCRIBED IN 2.1.4.4.2.1 AND 2.1.4.4.3.2

2.1.4.6.4 PULL DOWN THE "DISPLAY" MENU
2.1.4.6.5 SELECT THE "DETAILS" FUNCTION
2.1.4.6.6 USING THE ARROW KEYS AND THE MOUSE, POSITION THE CURSOR WITHIN THE 'DESCRIPTION' BLOCK.
2.1.4.6.7 ENTER THE DESCRIPTIVE INFORMATION.

2.1.4.6.8 PULL DOWN THE "EDIT" MENU
2.1.4.6.9 SELECT THE "SAVE AND CLOSE" FUNCTION

2.1.4.7 DEVELOP INITIAL SUBSTANTIVE ERD

2.1.4.7.1 PERFORM STEPS DETAILED IN 2.1.4.1, 2.1.4.2, 2.1.4.4, 2.1.4.5 AND 2.1.4.6

2.1.4.8 EVALUATE AND REVISE SUBSTANTIVE ERD

2.1.4.8.1 PERFORM STEPS DETAILED IN 2.1.4.1, 2.1.4.2, 2.1.4.4, 2.1.4.5 AND 2.1.4.6

2.1.4.9 DEFINE SUBSTANTIVE RELATIONSHIPS

2.1.4.9.1 PERFORM STEPS IN 2.1.4.1, 2.1.4.2, 2.1.4.4, AND 2.1.4.6

2.1.4.10 DETERMINE CARDINALITIES IN SUBSTANTIVE ERD

2.1.4.10.1 PERFORM STEPS AS DETAILED IN 2.1.4.6
2.1.4.10.2 WHILE IN THE "DETAILS" FUNCTION, ENTER THE CARDINAL RELATIONSHIPS IN THE RESERVED AREAS ('MIN' AND 'MAX')
2.1.4.10.3 "SAVE AND CLOSE" AS DESCRIBED

2.1.4.11 IDENTIFY CLASSIFYING ENTITY TYPES AND SUB-ENTITY TYPES FOR EACH SUBSTANTIVE ENTITY TYPE

2.1.4.11.1 LOGON TO ANALYSIS WORKBENCH
2.1.4.11.2 PULL DOWN THE "DISPLAY" MENU
2.1.4.11.3 SELECT THE "DECOMPOSITION DIAGRAM" FUNCTION (SEE FIGURE A.2.1.2)
2.1.4.11.4 SELECT "SUBJECT AREA" OPTION
2.1.4.11.5 ENTER THE NAME OF ONE FULL SUBSTANTIVE CONCEPTUAL ENTITY IF SUBJECT AREA FOR THAT ENTITY NOT ALREADY CREATED, OTHERWISE SEE NEXT STEP
2.1.4.11.6 SELECT "CREATE" IF NAME WAS ENTERED OR "FIND" IF NOT. IF USING "CREATE", SKIP NEXT STEP
2.1.4.11.7 SELECT THE SINGLE FULL SUBSTANTIVE CONCEPTUAL ENTITY FOR WHICH YOU DESIRE TO IDENTIFY CLASSIFYING AND SUB-ENTITY TYPES, AND THEN SELECT "PROCEED"
2.1.4.11.8 ENSURE THAT A SUBJECT AREA EXISTS WHOSE NAME EQUALS THE NAME OF THE SPECIFIED CONCEPTUAL ENTITY.
2.1.4.11.9 TO ADD A SUBJECT AREA:

2.1.4.11.9.1 PULL DOWN THE "ADD" MENU
2.1.4.11.9.2 SELECT THE "SUBJECT AREA" OPTION
2.1.4.11.9.3 TYPE IN THE NAME OF THE SUBJECT AREA AND SELECT "PROCEED"
2.1.4.11.10 ENSURE THAT A SUBJECT AREA EXISTS WHOSE NAME EQUALS THE NAME OF THE SPECIFIED CONCEPTUAL ENTITY FOLLOWED BY THE EXTENSION, "-ROOT".
2.1.4.11.11 ENSURE THAT THE SUBJECT AREA, <entity name>-ROOT IS HIERARCHICALLY BENEATH THE SUBJECT AREA FOR THE ENTITY ITSELF
2.1.4.11.12 TO SPECIFY A HIERARCHY:

2.1.4.11.12.1 ENSURE THAT NEITHER SUBJECT AREA IS SELECTED
2.1.4.11.12.2 CLICK THE CURSOR ONTO THE HIGHER LEVEL SUBJECT AREA AND, KEEPING THE BUTTON DOWN, DIRECT THE CURSOR TO WITHIN THE LOWER LEVEL SUBJECT AREA, AND RELEASE THE BUTTON.

2.1.4.11.13 CREATE A SUBJECT AREA FOR EACH CLASSIFYING ENTITY WHICH CLASSIFIES THE SELECTED ENTITY AND FOR EACH SUB-ENTITY OF THE ENTITY
2.1.4.11.14 PLACE EACH SUBJECT AREA CREATED DIRECTLY BELOW THE ENTITY SUBJECT AREA IN THE HIERARCHY
2.1.4.11.15 ONE AT A TIME, SELECT EACH SUBORDINATE SUBJECT AREA.
2.1.4.11.16 PULL DOWN THE DISPLAY MENU
2.1.4.11.17 SELECT THE "ENTITY VIEW" FUNCTION, WHICH WILL DISPLAY AN ENTITY DIAGRAM WHICH REPRESENTS A SUBSET OF THE ENTIRE ENTITY DIAGRAM (SEE FIGURE A.2.1.3)
2.1.4.11.18 PULL DOWN THE "ADD" MENU, SELECT "ENTITY" AND "FIND"
2.1.4.11.19 IF "FIND" WAS USED AND THE ENTITY THAT THE GIVEN SUBJECT AREA VIEWS IS FOUND, SELECT IT AND "PROCEED", ELSE "CANCEL", ENTER THE NAME OF THE ENTITY, AND SELECT "CREATE".
2.1.4.11.20 IF "CREATE" WAS USED, SELECT "FUNDAMENTAL" AND FILL OUT WHAT YOU KNOW IN THE "DESCRIPTION" BLOCK, AND THEN "PROCEED"
2.1.4.11.21 EACH LOWER LEVEL SUBJECT AREA'S VIEW SHOULD INCLUDE THE PARENT ENTITY AND THE ENTITY FOR WHICH THE SUBJECT AREA IS NAMED. THE ONE EXCEPTION IS THE <entity name>-ROOT SUBJECT AREA, WHOSE VIEW SHOULD BE LIMITED TO THE TOP LEVEL ENTITY (<*entity* name>) BY ITSELF.
2.1.4.11.22 IF, AFTER PLACING THE APPROPRIATE ENTITIES, SUB-ENTITIES, AND/OR CLASSIFYING ENTITIES INTO THE DIAGRAM, NO RELATIONSHIP IS SHOWN BETWEEN THEM, CREATE RELATIONSHIPS AS EXPLAINED IN 2.1.4.2, 2.1.4.6, AND 2.1.4.10.
2.1.4.11.23 AFTER ALL OF THE FIRST LEVEL CLASSIFYING AND SUB-ENTITY SUBJECT AREAS AND THEIR RESPECTIVE ENTITIES HAVE BEEN DEFINED, CONTINUE ON TO THE NEXT LEVEL (IF NECESSARY) FOR EACH, OBSERVING THE SAME PROCEDURES, BUT WITH THE FOLLOWING ADDITIONAL RULES:

2.1.4.11.23.1 ALL 'ANCESTORS' SHOULD SHOW UP IN EACH ENTITY VIEW

2.1.4.11.24 CLOSE EACH ENTITY VIEW BEFORE PROCEEDING TO THE NEXT VIA THE SUBJECT AREA DECOMPOSITION DIAGRAM
2.1.4.11.25 TO COMBINE THE VIEWS OF THE LOWER LEVEL SUBJECT AREAS INTO A HIGHER LEVEL SUBJECT AREA: (SEE FIGURE A.2.1.5)

2.1.4.11.25.1 IN THE SUBJECT AREA DECOMPOSITION DIAGRAM, DESELECT ALL
2.1.4.11.25.2 FOR EACH SUBJECT AREA WITH DESCENDENTS, STARTING WITH THE LOWER LEVELS, SELECT EACH DESCENDENT
2.1.4.11.25.3 PULL DOWN THE "DISPLAY" MENU
2.1.4.11.25.4 SELECT THE "COMBINED VIEWS" FUNCTION
2.1.4.11.25.5 ENTER THE PARENT SUBJECT AREA NAME AND SELECT "PROCEED"
2.1.4.11.25.6 AN ENTITY VIEW WILL BE DISPLAYED WHICH REPRESENTS THE VIEW OF THE ERD FROM THE IDENTIFIED PARENT SUBJECT AREA, AND WHICH INCLUDES THE VIEWS OF ALL OF THE IDENTIFIED

DESCENDENTS.

2.1.4.11.26 PERFORM THE PREVIOUS STEPS FOR EACH PARENT SUBJECT AREA, ONE AT A TIME, STARTING AT THE BOTTOM OF THE SUBJECT AREA HIERARCHY

2.1.4.11.27 CLOSE THE SUBJECT AREA DECOMPOSITION DIAGRAM AND CONTINUE ON THE NEXT TOP LEVEL FULL CONCEPTUAL SUBSTANTIVE ENTITY AND PROCEED IN THE SAME MANNER.

2.1.4.11.28 AFTER COMPLETION OF ALL OF THE SUBJECT AREA VIEWS FOR ALL OF THE ENTITIES, PERFORM STEPS 2.1.4.1 (BUT IN ANALYSIS WORKBENCH) IN ORDER TO VIEW THE ENTIRE ERD

2.1.4.12 DEVELOP INITIAL CLASSIFYING ERDs

2.1.4.12.1 PERFORM STEPS OUTLINED IN 2.1.4.11 TO AS GREAT A DETAIL AS IS REQUIRED. REMEMBER TO PERFORM THE COMBINED VIEWS FUNCTION AT THE END OF EACH SESSION.

2.1.4.13 DEFINE EACH CLASSIFYING ENTITY TYPE AND SUB-TYPE

2.1.4.13.1 PERFORM STEPS OUTLINED IN 2.1.4.1, IN THE ANALYSIS WORKBENCH, IN ORDER TO DISPLAY THE ENTIRE ENTITY RELATIONSHIP DIAGRAM

2.1.4.13.2 PERFORM STEPS OUTLINED IN 2.1.4.5 IN ORDER TO ENTER THE DEFINITIONS FOR EACH CLASSIFYING ENTITY AND SUB-TYPE

2.1.4.14 EVALUATE AND REVISE INITIAL CLASSIFYING ERDs

2.1.4.14.1 REVISE ENTITY RELATIONSHIP DIAGRAM AS NECESSARY, IN ACCORDANCE TO THE DEFINED RULES, BUT THROUGH THE SUBJECT AREA VIEWS, AS DESCRIBED IN 2.1.4.11

2.1.4.14.2 REMEMBER TO PERFORM THE COMBINED VIEWS AS DESCRIBED BEFORE THE END OF THE SESSION

2.1.4.15 REVIEW AND REVISE CLASSIFYING ENTITY TYPE AND SUB-TYPE DEFINITIONS

2.1.4.15.1 MODIFY CLASSIFYING ENTITY TYPE AND SUB-TYPE DEFINITIONS AS NECESSARY USING THE STEPS PREVIOUSLY OUTLINED

2.1.4.16 IDENTIFY ATTRIBUTES FOR EACH ENTITY TYPE AND ASSOCIATIVE ENTITY TYPE

2.1.4.16.1 PERFORM THE ATTRIBUTION OF ENTITIES <u>ONLY</u> THROUGH THE SUBJECT AREA ENTITY VIEWS

2.1.4.16.2 PERFORM THE FOLLOWING STEPS FOR EACH TOP LEVEL CONCEPTUAL SUBSTANTIVE ENTITY IN TURN

2.1.4.16.3 BRING UP THE SUBJECT AREA DECOMPOSITION DIAGRAM FOR THE ENTITY AS DESCRIBED IN 2.1.4.11

2.1.4.16.4 EACH ENTITY WILL BE ATTRIBUTED THROUGH THE SUBJECT AREA ENTITY VIEW OF THE SUBJECT AREA WITH THE SAME NAME. THE ENTITY ITSELF WILL BE ATTRIBUTED THROUGH THE <entity-name>-ROOT SUBJECT AREA. ON SUBJECT AREA ENTITY VIEWS WITH A VIEW OF MORE THAN ONE ENTITY OBJECT, ATTRIBUTE ONLY THE ENTITY OBJECT WITH THE SAME NAME AS THE SUBJECT

AREA

2.1.4.16.5 TO ATTRIBUTE AN ENTITY OBJECT (SEE FIGURE A.2.1.4)

2.1.4.16.5.1 ON THE APPROPRIATE SUBJECT AREA ENTITY VIEW, DESELECT ALL
2.1.4.16.5.2 SELECT THE ENTITY OBJECT TO BE ATTRIBUTED
2.1.4.16.5.3 PULL DOWN THE "DISPLAY" MENU
2.1.4.16.5.4 SELECT THE "ENTITY TYPE DESCRIPTION" FUNCTION
2.1.4.16.5.5 PULL DOWN THE "ADD" MENU
2.1.4.16.5.6 SELECT THE "ATTRIBUTE TYPE" OPTION
2.1.4.16.5.7 SELECT THE "FIND" OPTION AND "PROCEED"
2.1.4.16.5.8 IF THE DESIRED ATTRIBUTE TYPE IS DISPLAYED ON THE RESULTANT LIST, SELECT IT AND "PROCEED", AND SKIP THE NEXT STEP.
2.1.4.16.5.9 IF THE DESIRED ATTRIBUTE TYPE WAS NOT FOUND, ENTER THE NAME OF THE ATTRIBUTE AND SELECT THE "CREATE" FUNCTION
2.1.4.16.5.10 PERFORM THESE STEPS UNTIL ALL THE ATTRIBUTES FOR THE GIVEN ENTITY OBJECT HAVE BEEN DEFINED

2.1.4.16.6 CLOSE THE ENTITY TYPE DESCRIPTION WINDOW, CLOSE THE SUBJECT AREA ENTITY VIEW DIAGRAM, DESELECT THE CURRENT SUBJECT AREA, SELECT THE NEXT SUBJECT AREA AND CONTINUE AS DESCRIBED UNTIL ALL ENTITY OBJECTS HAVE BEEN ATTRIBUTED VIA THEIR RESPECTIVE SUBJECT AREA'S ENTITY VIEWS

2.1.4.17 EVALUATE ATTRIBUTE ASSIGNMENTS TO ENTITIES

2.1.4.17.1 PERFORM STEPS OUTLINED IN 2.1.4.16 AS NECESSARY
2.1.4.17.2 TO DELETE AN ATTRIBUTE:

2.1.4.17.2.1 AS OUTLINED IN 2.1.4.16, BRING UP THE ENTITY TYPE DESCRIPTION THAT CONTAINS THE GIVEN ATTRIBUTE, THROUGH THE SUBJECT AREA ENTITY VIEW
2.1.4.17.2.2 SELECT THE ATTRIBUTE TO BE DELETED
2.1.4.17.2.3 PULL DOWN THE "EDIT" MENU
2.1.4.17.2.4 SELECT THE "DELETE" FUNCTION AND "PROCEED"
2.1.4.17.2.5 "PROCEED"

2.1 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.1 DEVELOP AND ATTRIBUTE THE ENTITY RELATIONSHIP MODEL

Reference Appendix D, DETAILED PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.1.1 PURPOSE

The purpose in these PC DICTIONARY detailed procedures is to explain how to capture and report the information that is gathered while developing and attributing the entity relationship model.

2.1.2 COMPONENTS/TERMS

2.1.2.1 ONE-ASSOCIATION TO

A One-Association holds from a source entity (the entity being defined) to a target entity such that an instance of the source entity determines a single instance of the target entity. This implies that the identifier of the target entity has a functional dependency on the identifier of the source entity. Example: Member being defined....EMPLOYEE

Sub Member Name....MANAGER (An employee has at least one and at most one manager; 1,1)

Sub Member Name....FULL-TIME-EMPLOYEE (An employee can be at least zero full-time employees and at most one full-time employee; 0,1)

2.1.2.2 ONE-ATTRIBUTES ARE

A One-Attribute is an attribute whose value is uniquely determined by each instance of the source entity (the entity being defined). Each instance of the source entity (and thus each value of the identifier) determines exactly one value of the attribute.

Example: Member being defined....EMPLOYEE

Sub Member Name....EMPLOYEE-SEX-CODE (An employee has at least one and at most one sex code; 1,1)

Sub Member Name....EMPLOYEE-HOME-TELEPHONE-NUMBER (An employee has at least zero and at most one home telephone number; for our example, we don't care if they have more than one home telephone number; we will only capture one; 0,1)

2.1.2.3 MULTI-ASSOCIATION TO

A Multi-Association holds from a source entity (the entity being defined) to a target entity such that an instance of the source entity determines a variable number of instances (perhaps none) of the target entity. This implies that the identifier of the target entity has a multi-valued dependency on the identifier of the source entity.

Example 1: Member being defined....CONTRACTOR

Sub Member Name....CONTRACTOR-HISTORY (A contractor has at least zero history information and at most many history information; 0,M)

Example 2: Member being defined....TEACHER

Sub Member Name....COURSE (A teacher must teach at least one course and at most many courses; 1,M)

2.1.2.4 MULTI-ATTRIBUTES ARE

A Multi-Attribute is an attribute whose value is multiply determined by each instance of the source entity (the entity being defined). Each instance of the source entity (and thus each value of the identifier) determines zero, one, or many values of the attribute.

Example: Member being defined....EMPLOYEE

Sub Member Name....DEPENDENT-NAME (An employee has at least zero dependents and at most many dependents; 0,M)

Sub Member Name....LANGUAGE-SPOKEN (An employee has at least one spoken language and at most many languages; 1,M)

2.1.3 INPUT PRODUCTS

2.1.3.1 Conceptual Entities
(Get list of Conceptual Entities)

2.1.3.1.1 Select CATALOGUE from QUERY MENU.
2.1.3.1.2 Select query logic, EQUAL.
2.1.3.1.3 Enter catalogue name, CONCEPTUAL, or select from look up list [F2].
2.1.3.1.4 Check report destination [ALT-F10].
2.1.3.1.5 Start query [F10].
(Get report of Entities using the previous list)
2.1.3.1.6 Select MEMBER DEFINITION from REPORT MENU.
2.1.3.1.7 Select member(s) that were on catalogue query report [SPACE BAR].
2.1.3.1.8 Check report destination [ALT-F10].
2.1.3.1.9 Print report [F10-GO].

2.1.4 GENERAL PROCEDURES

2.1.4.5 Briefly Define Each Substantive Entity Type and Sub-Type
(Adding new Substantive Entities)

2.1.4.5.1 Add each new Substantive Entity Type/Sub-Type.
2.1.4.5.2 Edit the DEFINITION attribute.
2.1.4.5.3 Write one to three sentences of definition.
2.1.4.5.4 Save the DEFINITION.
2.1.4.5.5 Edit the CATALOG attribute.
2.1.4.5.6 Add the CATALOG 'ENTITY'.

2.1.4.5.7 Add another CATALOG 'SUBSTANTIVE'.
2.1.4.5.8 Add another CATALOG 'SUB ENTITY', if necessary.
2.1.4.5.9 Save CATALOGs.
2.1.4.5.10 Edit any other attributes, as needed.
2.1.4.5.11 Save new Entity.
(Relating Substantive Entity Types and Sub-Types)
2.1.4.5.12 Edit the Substantive Entity Type.
2.1.4.5.13 Edit the SUB-ENTITIES ARE relationship.
2.1.4.5.14 Add the name of the Substantive Entity Sub-Type, or use F2 lookup to select the name from the list.
2.1.4.5.15 Save SUB-ENTITIES.
2.1.4.5.16 Save Substantive Entity Type.

2.1.4.9 Define Substantive Relationships
(Adding Substantive Relationships)

2.1.4.9.1 Add each Substantive Relationship.
2.1.4.9.2 Edit the DEFINITION attribute.
2.1.4.9.3 In one to three sentences, describe what the relationship (verb phrase) means in relation to the Entity Types it serves to relate.
2.1.4.9.4 Save the DEFINITION.
2.1.4.9.5 Edit the CATALOG attribute.
2.1.4.9.6 Add the CATALOG 'RELATIONSHIP'.
2.1.4.9.7 Add another CATALOG 'SUBSTANTIVE'.
2.1.4.9.8 Save CATALOGs.
2.1.4.9.9 Edit any other attributes, as needed.
2.1.4.9.10 Save Substantive Relationship.

2.1.4.10 Determine Cardinalities in Substantive ERD
(Adding Cardinalities to Relationships)

2.1.4.10.1 Edit each Relationship.
2.1.4.10.2 Edit the BUSINESS-RULE attribute.
2.1.4.10.3 Describe the rules that make this relationship necessary.
2.1.4.10.4 Save the BUSINESS-RULE.
2.1.4.10.5 Save the Relationship.
(Relate Substantive Entity Types)
2.1.4.10.6 Edit Substantive Entity Type.
2.1.4.10.7 Edit ONE-ASSOCIATION/MULTI-ASSOCIATION relationship.
2.1.4.10.8 Add name(s) of Substantive Entity Type, or select from F2 lookup list.
2.1.4.10.9 Save ONE-ASSOCIATION/MULTI-ASSOCIATIONs.
2.1.4.10.10 Save Substantive Entity Type.

2.1.4.13 Define Each Classifying Entity Type and Sub-Type
(Adding new Classifying Entities)

2.1.4.13.1 Add each new Classifying Entity Type/Sub-Type.
2.1.4.13.2 Edit the DESCRIPTION attribute.
2.1.4.13.3 Write one to three sentences of description, embellishing the name sufficiently to understand what the classification really means.
2.1.4.13.4 Save the DESCRIPTION.
2.1.4.13.5 Edit the CATALOG attribute.

2.1.4.13.6 Add the CATALOG 'ENTITY'.
2.1.4.13.7 Add another CATALOG 'CLASSIFYING'.
2.1.4.13.8 Add another CATALOG 'SUB ENTITY', if necessary.
2.1.4.13.9 Save CATALOGs.
2.1.4.13.9 Edit any other attributes, as needed.
2.1.4.13.10 Save new Entity.
(Relate Entity Types and Entity Sub-Types)
2.1.4.13.11 Edit the Entity Type.
2.1.4.13.12 Edit the SUB-ENTITIES ARE relationship.
2.1.4.13.13 Add the name of the Entity Sub-Type, or use F2 lookup to select the name from the list.
2.1.4.13.14 Save SUB-ENTITIES.
(Relate Substantive Entity Types and Classifying Entity Types)
2.1.4.13.15 Edit ONE-ASSOCIATION/MULTI-ASSOCIATION relationship.
2.1.4.13.16 Add name(s) of Substantive Entity Type, or select from F2 lookup list.
2.1.4.13.17 Save ONE-ASSOCIATION/MULTI-ASSOCIATIONs.
2.1.4.13.18 Save Entity Type.
2.1.4.13.19 Repeat for related Entity Type.

2.1.4.13.15 Save Entity Type.

2.1.4.15 Review and Revise Classifying Entity Type and Sub-Type Definitions
(Editing Classifying Entities)

2.1.4.15.1 Edit each Classifying Entity Type/Sub-Type.
2.1.4.15.2 Edit the DESCRIPTION attribute.
2.1.4.15.3 Make changes as needed.
2.1.4.15.4 Save the DESCRIPTION.
2.1.4.15.5 Edit any other attributes, as needed.
2.1.4.15.6 Save Entity.

2.1.4.16 Identify Attributes for each Entity Type and Associative Entity Type(i.e. Substantive Relationships)
(Adding new Associative Entities)

2.1.4.16.1 Add each new Associative Entity Type.
2.1.4.16.2 Edit the DESCRIPTION attribute.
2.1.4.16.3 Write one to three sentences of description, explaining the Relationship that was transformed into an Entity.
2.1.4.16.4 Save the DESCRIPTION.
2.1.4.16.5 Edit the CATALOG attribute.
2.1.4.16.6 Add the CATALOG 'ENTITY'.
2.1.4.16.7 Add another CATALOG 'ASSOCIATIVE'.
2.1.4.16.8 Save CATALOGs.
2.1.4.16.9 Edit any other attributes, as needed.
2.1.4.16.10 Save new Associative Entity Type.
(Adding Context Attributes)
2.1.4.16.11 Add Context Attribute.
2.1.4.16.12 Edit the DEFINITION.
2.1.4.16.13 Write a one sentence definition.
2.1.4.16.14 Save DEFINITION.
2.1.4.16.15 Edit CATALOG attribute.
2.1.4.16.16 Add the CATALOG 'CONTEXT ATTRIBUTE'.

2.1.4.16.17 Save CATALOG.
2.1.4.16.18 Edit any other attributes, as needed.
2.1.4.16.19 Save Context Attribute.

2.1.4.17 Evaluate Attribute Assignments to Entities
(Adding new Attributes, name only, to Entities)

2.1.4.17.1 Edit each Entity Type.
2.1.4.17.2 Edit the ONE-ATTRIBUTE/MULTI-ATTRIBUTE relationship.
2.1.4.17.3 Add the names of the Attributes, following the naming conventions. This will create a NULL Attribute.
2.1.4.17.4 Save the ONE-ATTRIBUTE/MULTI-ATTRIBUTE.
2.1.4.17.5 Edit the IDENTIFIER relationship.
2.1.4.17.6 Add the name of the Attribute that uniquely identifies the Entity Type being defined, following the naming conventions. This will create a NULL Attribute.
2.1.4.17.7 Save Entity Type.

2.1.5 OUTPUT PRODUCTS

2.1.5.3 Entity Type Definition Report
(Get list of Entity types that are used in the project.)

2.1.5.3.1 Select CATALOGUE from QUERY MENU.
2.1.5.3.2 Select query logic, EQUAL.
2.1.5.3.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].
2.1.5.3.4 Select query logic, AND.
2.1.5.3.5 Select query logic, EQUAL.
2.1.5.3.6 Enter catalogue name, ENTITY, or select from look up list [F2].
2.1.5.3.7 Check report destination [ALT-F10].
2.1.5.3.8 Start query [F10].
(Get report of Entities using previous list)
2.1.5.3.9 Select MEMBER DEFINITION from REPORT MENU.
2.1.5.3.10 Select one entity type that was on catalogue query report [SPACE BAR].
2.1.5.3.11 Check report destination [ALT-F10].
2.1.5.3.12 Print report [F10-GO].
2.1.5.3.13 Repeat for each entity type.

2.1.5.4 Relationship Type Definition Report
(Get list of Substantive and Classifying Relationships)
2.1.5.4.1 Select CATALOGUE from QUERY MENU.
2.1.5.4.2 Select query logic, EQUAL.
2.1.5.4.3 Enter catalogue name, SUBSTANTIVE, or select from look up list [F2].
2.1.5.4.4 Select query logic, AND.
2.1.5.4.5 Select query logic, EQUAL.
2.1.5.4.6 Enter catalogue name, CLASSIFYING, or select from look up list [F2].
2.1.5.4.7 Select query logic, AND.
2.1.5.4.8 Select query logic, EQUAL.
2.1.5.4.9 Enter catalogue name, RELATIONSHIP, or select from look up list [F2].

2.1.5.4.10 Check report destination [ALT-F10].
2.1.5.4.11 Start query [F10].
(Get report of Relationships using previous list)
2.1.5.4.12 Select MEMBER DEFINITION from REPORT MENU.
2.1.5.4.13 Select member(s) that were on catalogue query report [SPACEBAR].
2.1.5.4.14 Check report destination [ALT-F10].
2.1.5.4.15 Print report [F10-GO].

2.1.5.5 Attributed Entities Report

Report in 2.1.5.3.9 gives the attributes for each Entity.

2.1.5.6 Attribute Definition Report
(Get report of Context Attributes using Entity type report from 2.1.5.3)
2.1.5.6.1 Select MEMBER DEFINITION from REPORT MENU.
2.1.5.6.2 Select member(s) that are listed in the ONE/MULTI-ATTRIBUTES clause of the entity. [SPACEBAR].
2.1.5.6.3 Check report destination [ALT-F10].
2.1.5.6.4 Print report [F10-GO].
2.1.5.6.5 Repeat for each entity type.

Recommend placing the subject area ERDS, entity type, and attribute reports in a notebook with tabs separating each entity type. Each section could be ordered with an ERD first, the entity type definition report, followed by the attribute definition report for that entity type.

2.2 DECOMPOSE PROCESSES

Figure 2.2-1 Step Overview
Figure 2.2-2 Step Products
Figure 2.2-3 Step Components

2.2.1 PURPOSE

2.2.2 COMPONENTS/TERMS

2.2.2.1 Processes
2.2.2.2 Levels of the Logical Functional Architecture
2.2.2.3 Sequential Processes
2.2.2.4 Process Dependencies

2.2.3 INPUT PRODUCTS

2.2.3.1 LIA CRUD Association Matrix
2.2.3.2 Function and Process Reports
2.2.3.3 Entity Type Reports

2.2.4 GENERAL PROCEDURES

2.2.4.1 Review LIA CRUD Association Matrix
2.2.4.2 Review Function, Process, and Entity Reports
2.2.4.3 Select and Decompose Processes
2.2.4.4 Develop Process Dependency Diagrams (DEP-Ds)
2.2.4.5 Develop Process Decomposition Diagrams
2.2.4.6 Define characteristics of in-scope processes

2.2.5 OUTPUT PRODUCTS

2.2.5.1 Process Dependency Diagrams
2.2.5.2 Process Decomposition Diagrams
2.2.5.3 Process Reports

2.2.6 RULES

2.2.6.1 Adherence to scoping criteria
2.2.6.2 Mutual exclusivity
2.2.6.3 Exhaustiveness
2.2.6.4 Naming conventions and definitions

2.2.6.4.1 Process Naming Conventions
2.2.6.4.2 External Agent Naming Conventions
2.2.6.4.3 Data Flow Naming Conventions
2.2.6.4.4 Process Dependency Naming Conventions

2.2.6.5 Life Cycle Rules

2.2.7 EXAMPLES

Figure 2.2.7-1 IEW LIA CRUD Association Matrix (Level 0 Only)
Figure 2.2.7-2 IEW Function Report (For Function AA)

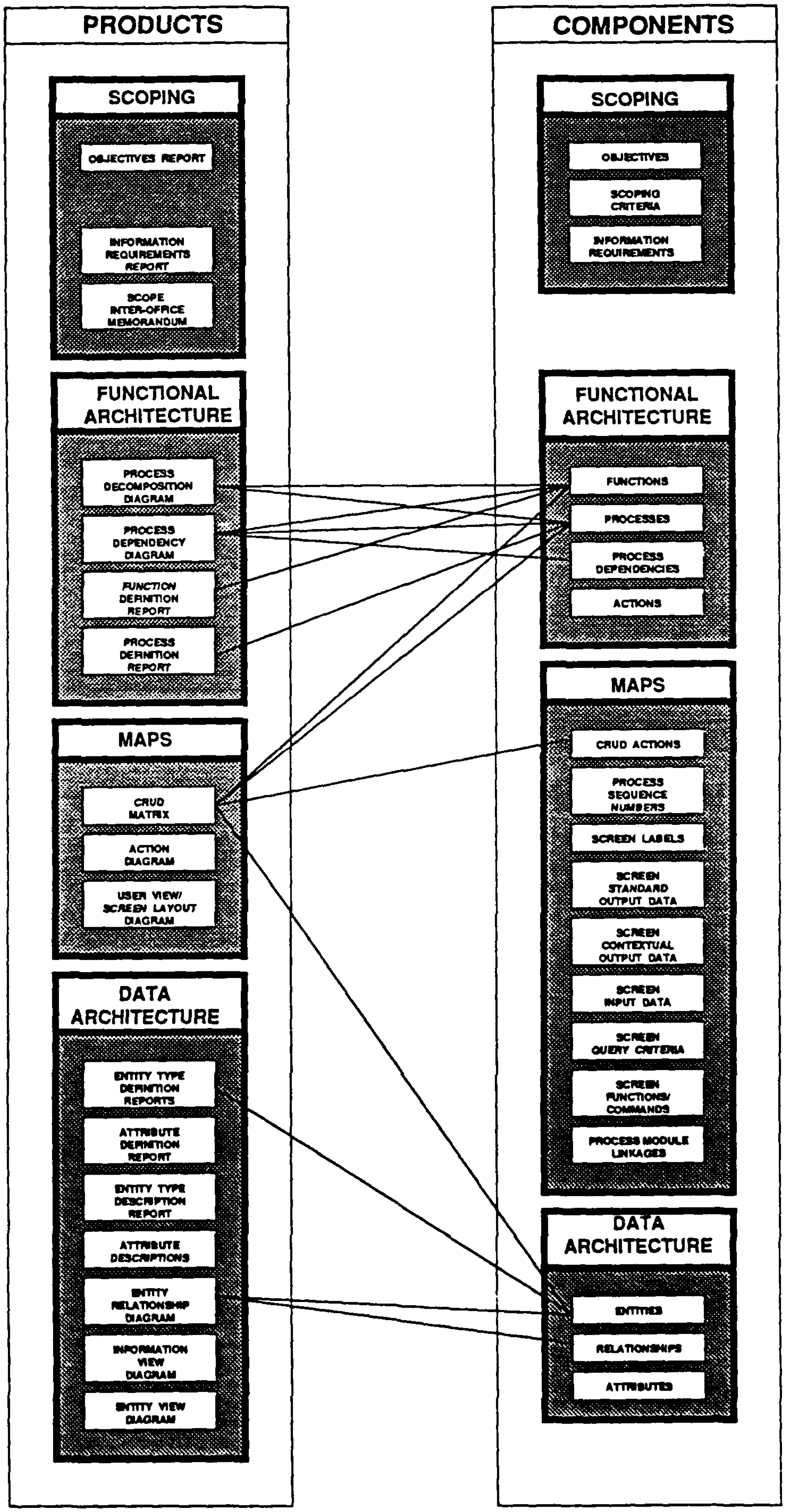


FIGURE 2.2-1
STEP OVERVIEW

2.2 DECOMPOSE PROCESSES STEPS / PRODUCTS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. REVIEW CRUD ASSOCIATION MATRIX									R									
2. REVIEW FUNCTION, PROCESS, AND ENTITY REOORTS							R	R				R				R		
3. SELECT AND DECOMPOSE PROCESSES								C										
4. DEVELOP PROCESS DEPENDENCY DIAGRAMS						C												
5. DEVELOP PROCESS DECOMPOSITION DIAGRAMS					C													
6. DEFINE CHARACTERISTICS OF IN-SCOPE PROCESSES								C										

FIGURE 2.2-2
STEP PRODUCTS

COMPONENTS / 2.2 DECOMPOSE PROCESSES STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW CRUD ASSOCIATION MATRIX								R											
2. REVIEW FUNCTION, PROCESS, AND ENTITY REOORTS				R	R												R	R	
3. SELECT AND DECOMPOSE PROCESSES					C														
4. DEVELOP PROCESS DEPENDENCY DIAGRAMS						C													
5. DEVELOP PROCESS DECOMPOSITION DIAGRAMS					C														
6. DEFINE CHARACTERISTICS OF IN-SCOPE PROCESSES					C														

FIGURE 2.2-3
STEP COMPONENTS

2.2 DECOMPOSE PROCESSES

This module addresses the functional architecture and results in the establishment of the relationships between functions and processes.

2.2.1 PURPOSE

Process Dependency Diagrams (DEP-Ds) and Process Decomposition Diagrams (DEC-Ds) are developed in this step to present the processing structure of selected functions. Each high-level process can also have a structure of subprocesses within it. The "breadth", or horizontal structure of a function or process shows the life-cycle of the processes, and the "depth" shows the hierarchical work breakdown structure.

When the diagrams are complete they can be used by the members of the team to find anomalies and conflicts in the workbreakdown structure of the function or process. The diagrams are used to resolve inter-function and inter-process discrepancies in an iterative, increasingly detailed, top-down fashion. The objective of this step is to decompose the processes into the lowest level of process. The lowest level processes will then be further decomposed into "Actions" which create, retrieve, update, and delete data.

2.2.2 COMPONENTS/TERMS

2.2.2.1 Processes

A process is a low level action or group of actions that starts or stops and is repeatedly executed in a defined sequence. It has identifiable inputs and outputs expressed as information views of the data architecture. Each execution of a process produces a specification kind of effect on entities and their attributes. A process describes what a business does, not where, or when it does things. Processes may be performed by more than one organizational unit in a physical system. Processes are identified and described at the logical level of modeling. Processes may in turn be decomposed into lower level process (subprocesses) and actions.

2.2.2.2 Levels of the Logical Functional Architecture

The Logical Functional Architecture is the detailed structuring of one area of the of the Conceptual Functional Architecture. It is a view of that architecture based on one or more methods of defining an area for logical analysis. The functional architecture is decomposed in levels as follows: Functions, Processes, Sequential Processes, Actions. All functions which were selected in the Scoping Phase are considered to be level 0 of the Logical Functional Architecture. The first level of processes within all decomposed functions is level 1 of the Logical Functional Architecture. Processes are decomposed hierarchically until the level where actions on entities are reached (i.e., where Creation, Retrieve, Update, and Deletion of data starts occurring). The level just above the actions is the "leaf" process, also called a "sequential" process. There can be multiple levels of processes, one level of function, one level of sequential process, and multiple levels of actions. Diagrams are created for level 0 functions, processes and actions at each level as follows:

			DIAGRAM:		
	LEVEL	IN-SCOPE?	DEP-D	DEC-D	ACTION DIAG
FUNCTION A	0	YES	NO	YES	NO
FUNCTION AA	1	YES	YES	YES	NO
PROCESS AAA	2	NO	YES	YES	NO
PROCESS AAB	2	YES	YES	YES	NO
SEQUENTIAL PROCESS AABA	3	NO	NO	NO	NO
SEQUENTIAL PROCESS AABB	3	YES	NO	NO	YES
ACTION AABBA	4	YES	NO	NO	YES
ACTION AABBAA	5	YES	NO	NO	NO
ACTION AABBAB	5	YES	NO	NO	NO
ACTION AABBB	4	YES	NO	NO	NO
FUNCTION AB	1	NO	NO	NO	NO
PROCESS ABA	2	NO	NO	NO	NO
PROCESS ABB	2	NO	NO	NO	NO

Each function and process is decomposed by defining all of the

processes within it. Only those processes which in some way use the entities which are within the scope of the Subject Area are further decomposed.

2.2.2.3 Sequential Processes

Sequential processes are the lowest levels of the decomposed process hierarchy. Sequential processes are composed of "actions" (i.e., Create, Retrieve, Update, or Delete). Each sequential process within the scope of the functional architecture will be decomposed into action diagrams in the unit analysis phase of the Logical Information Architecture development.

2.2.2.4 Process Dependencies

Process dependency exists when one process depends on other processes to complete a task. The dependency can occur because processes require information from other processes. Dependencies indicate the sequence in which executions of processes must occur, whether they may be carried out in parallel with other processes, and whether they are mutually exclusive of each other. Processing sequence will also change when the processes are viewed from the differing life cycle perspectives of different entities. Dependencies serve as basis for procedure design during physical modeling.

The type of dependency between processes which is shown in Process Dependency Diagrams (DEP-Ds) is the general life cycle sequence of the primary entities of the enterprise. The primary entity of DLA is ITEM. The sequence of processes at each level in the process hierarchy should therefore be arranged according to the sequence for processing items.

2.2.3 INPUT PRODUCTS

2.2.3.1 LIA CRUD Association Matrix (Figure 2.2.7-1)

See previous definitions.

2.2.3.2 Function and Process Reports (Figure 2.2.7-2, 2.2.7-8)

See previous definitions.

2.2.3.3 Entity Type Reports (Figure 2.2.7-3)

See previous definitions.

2.2.4 GENERAL PROCEDURES

2.2.4.1 Review LIA CRUD Association Matrix

Review the functions and processes in the LIA CRUD Association Matrix. During the first iteration of this step, only functions will appear in the CRUD Association Matrix. If no processes have been added to the matrix then identify the "level 0" functions which have and have not been decomposed. If processes have been added, then identify which functions or processes are the parents and which are descendents.

2.2.4.2 Review Function, Process, and Entity Reports

Review the definitions of each function and process contained within the LIA which have been developed to date. Review the entity reports (of those entities which are within scope) to determine which processes use the entities and should therefore be further decomposed.

2.2.4.3 Select and Decompose Processes

Select processes which have been determined to be within scope and decompose them according to the rules. The first level to be decomposed is for selected level 0 functions. Decompose all Level 0 functions into all of their level 1 processes. Indicate the sequence of process occurrence of all level 1 processes using process dependency diagrams and the life cycle rules.

Prior to defining level 2 of the functional information architecture, conduct the remaining steps within the Global Analysis Phase. During the Review Scope step, those processes which are within scope will be identified so that they can be decomposed in the next iteration of this step. Those processes which are out-of-scope will not be further decomposed.

2.2.4.4 Develop Process Dependency Diagrams (DEP-Ds)

Develop DEP-Ds for all processes in the functional architecture which are within scope. The first "unit" to diagram will be the first level 0 function. Once all of the level 0 functions have completed DEP-Ds then, after the other steps have been completed for level 0 and the out-of-scope processes have been identified, the DEP-Ds for selected level 1 processes can be prepared (Figure 2.2.7-4 and 2.2.7-6).

2.2.4.5 Develop Process Decomposition Diagrams

Process Decomposition Diagrams (DEC-Ds) are automatically generated by the automated tools. DEC-Ds depict the hierarchical structure of the Logical Information Architecture. The general sequence of the occurrence of processes should be from left to right across the page. (Figure 2.2.7-5 and 2.2.7-7).

2.2.4.6 Define characteristics of in-scope processes

Each process which is added to the logical functional architecture and which is determined to be within the scope of the subject area needs to be described. Full descriptions should be entered as required by each automated tool (Figure 2.2.7-8).

2.2.5 OUTPUT PRODUCTS

2.2.5.1 Process Dependency Diagrams (Figure 2.2.7-4, 2.2.7-6)

Process Dependency Diagrams (DEP-Ds are pictorial representations of the flow of data through an enterprise or computerized system. DEP-Ds declare the existence of processes which transform data and their interfaces. DEP-D's are network presentations of a system, whether automated, manual, or mixed. They declare component pieces of the system and the interfaces among them.

2.2.5.2 Process Decomposition Diagrams (Figure 2.2.7-5, 2.2.7-7)

2.2.5.3 Process Reports (Figure 2.2.7-8)

2.2.6 RULES

2.2.6.1 Adherence to scoping criteria

All processes to be decomposed must support the scoping criteria (i.e., Objectives and Information Requirements).

2.2.6.2 Mutual exclusivity

All processes must be mutually exclusive at the same level of their respective hierarchy.

2.2.6.3 Exhaustiveness

All processes at one level of a hierarchy must completely exhaust the parent function.

2.2.6.4 Naming conventions and definitions

2.2.6.4.1 Process Naming Conventions

Format:

PROCESS HIERARCHY/SEQUENCE NUMBER + VERB WORD + NOUN WORD(S) AND ADJECTIVES

PROCESS HIERARCHY/SEQUENCE NUMBER examples:

AA - Function
AAA - Process within function AA
AAAA - Descendent process within AAA
AAAB - Descendent process within AAA AAB - Process within function AA

VERB WORD examples:

Assign, assure, perform, resolve, evaluate, implement, receive, issue, monitor, conduct, provide, close, conduct, apply, dispose, identify.
NOUN WORDS AND ADJECTIVES examples:

Item, Legal Entity, Offer, Contract, contractor, responsibilities, contract award, unsuccessful offerors, viable industrial base, purchase request, exceptions, progress reviews, payment, evaluation factors, performance.

Abbreviate verb words and noun words if necessary to keep the entire process name to 32 characters.

2.2.6.4.4 Process Dependency Naming Conventions

Process dependencies are indicated on DEP-Ds by the lines which connect processes. The names of the dependency lines indicate two processes which are dependent upon each other.

Format:

PROCESS HIERARCHY SEQUENCE NUMBER TO PROCESS HIERARCHY SEQUENCE NUMBER

Examples:

AAB TO AAC
AAC TO AAD

2.2.6.5 Life Cycle Rules

Processes are executed either serially or in parallel. Processes should be depicted on DEP-Ds from left to right on the page; this indicates that they are executed in a sequence starting from the left and progressing leftward and downward across the page. When two or more processes are executed in parallel then still show them in a sequence on the DEP-Ds. The sequence that parallel processes are shown in does not matter. (The entity life cycle matrices will show the proper sequence of execution of parallel processes.)

The life cycle sequences of processes are determined by when they act on entities. The actions which processes have on entities are Create, Retrieve, Update, and Delete (CRUD).

The life cycle of the entity which is of most concern to the enterprise should determine the sequences of processes. The primary entity of the Defense Logistics Agency (DLA) is "item." Therefore, the life cycle of "items" should be the first determinant of process sequence. The secondary determinants should be the life cycles of the conceptual entities which have been selected as part of the scoping process.

2.2.7 EXAMPLES

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

Figure 2.2.7-1 IEW CRUD Association Matrix (Level 0 Only)

Name

AL ENTITY

Purpose

FUNDAMENTAL

(FUNDAMENTAL, ASSOCIATIVE, ATTRIBUTIVE, OTHER

Definition

LEGAL ENTITY IS A PERSON OR GROUP OF PERSONS, A CORPORATION OR OTHER EXISTENCE RECOGNIZED BY LAW AS HAVING RIGHTS AND DUTIES. THIS INCLUDES: A MANUFACTURER, SUPPLIER, DEALER, VENDOR OR DISTRIBUTOR.

Comments

AUDIT TRAIL: LEGAL ENTITY INCLUDES SOURCE, OFFEROR, CONTRACTOR, SUBCONTRACTOR, PRE-AWARD SURVEY, PRE-AWARD SURVEY REQUEST, CAPABILITY, CONTRACTOR HISTORY, CONTRACTOR SYSTEM, CONTRACTOR SYSTEM REVIEW, CONTRACTOR SYSTEM CORRECTIVE ACTION, CONTRACT QUALITY ASSURANCE, FINDING, FORWARD PRICE RATE, PROCEDURE EVALUATION, PROCEDURE REVIEW, QUALITY DATA EVALUATION, AND SURVEILLANCE.

Last Update

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Figure 2.2.7-2 IEW Function Report (For Function AA)

Name

AL ENTITY

Purpose

FUNDAMENTAL

(FUNDAMENTAL, ASSOCIATIVE, ATTRIBUTIVE, OTHER

Definition

LEGAL ENTITY IS A PERSON OR GROUP OF PERSONS, A CORPORATION OR OTHER EXISTENCE RECOGNIZED BY LAW AS HAVING RIGHTS AND DUTIES. THIS INCLUDES: A MANUFACTURER, SUPPLIER, DEALER, VENDOR OR DISTRIBUTOR.

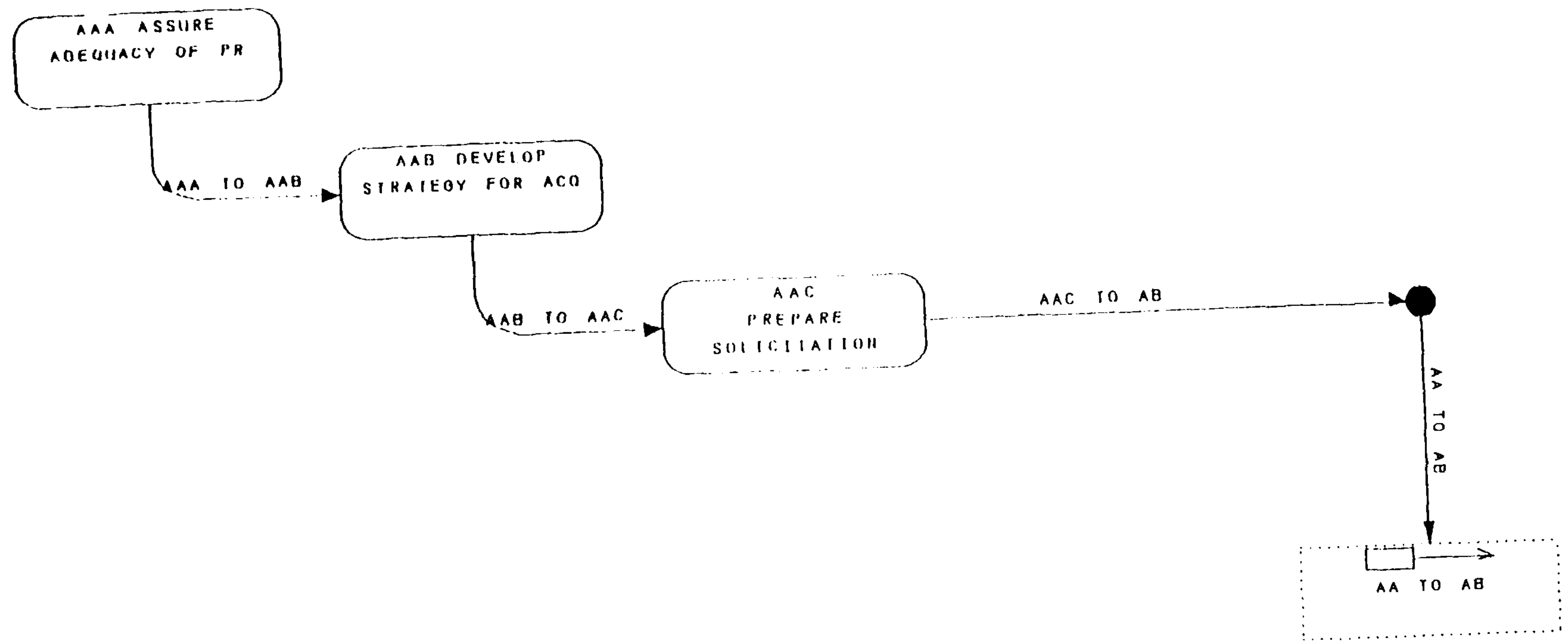
Comments

AUDIT TRAIL: LEGAL ENTITY INCLUDES SOURCE, OFFEROR, CONTRACTOR, SUBCONTRACTOR, PRE-AWARD SURVEY, PRE-AWARD SURVEY REQUEST, CAPABILITY, CONTRACTOR HISTORY, CONTRACTOR SYSTEM, CONTRACTOR SYSTEM REVIEW, CONTRACTOR SYSTEM CORRECTIVE ACTION, CONTRACT QUALITY ASSURANCE, FINDING, FORWARD PRICE RATE, PROCEDURE EVALUATION, PROCEDURE REVIEW, QUALITY DATA EVALUATION, AND SURVEILLANCE.

Last Update

'/08/23 08:43 NEWUSER

Figure 2.2.7-3 IEW LIA Entity Report



AA PURCHASE REQ PROCESSING (F)

May 18, 1990 12:51:02

Figure 2.2.7-4 IEW Level 0 Dependency Diagram

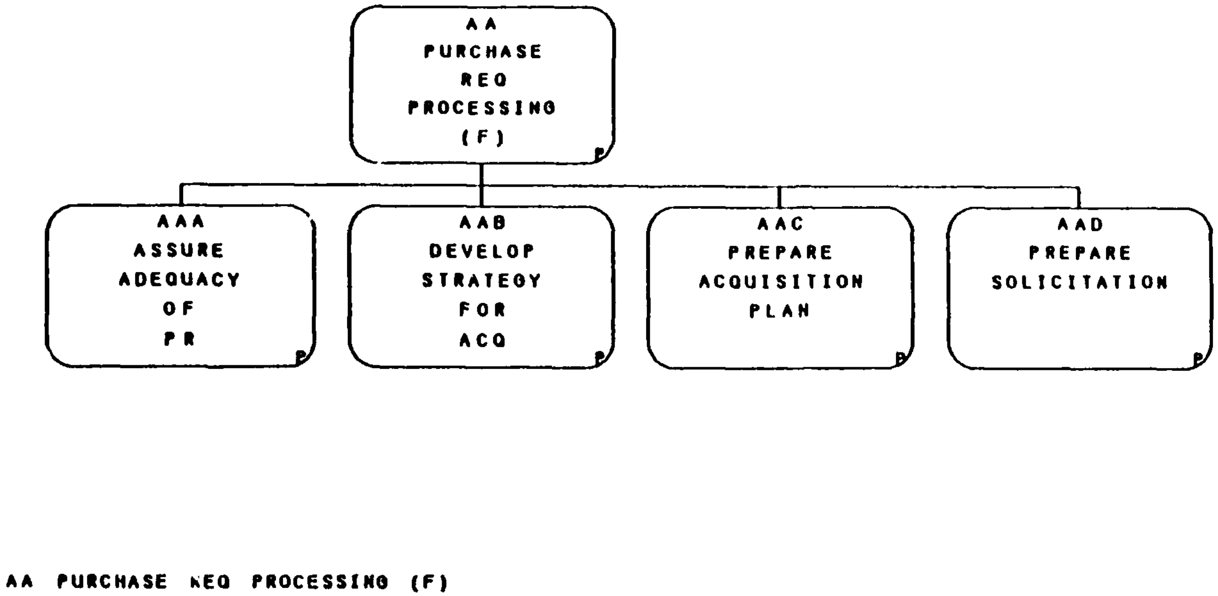
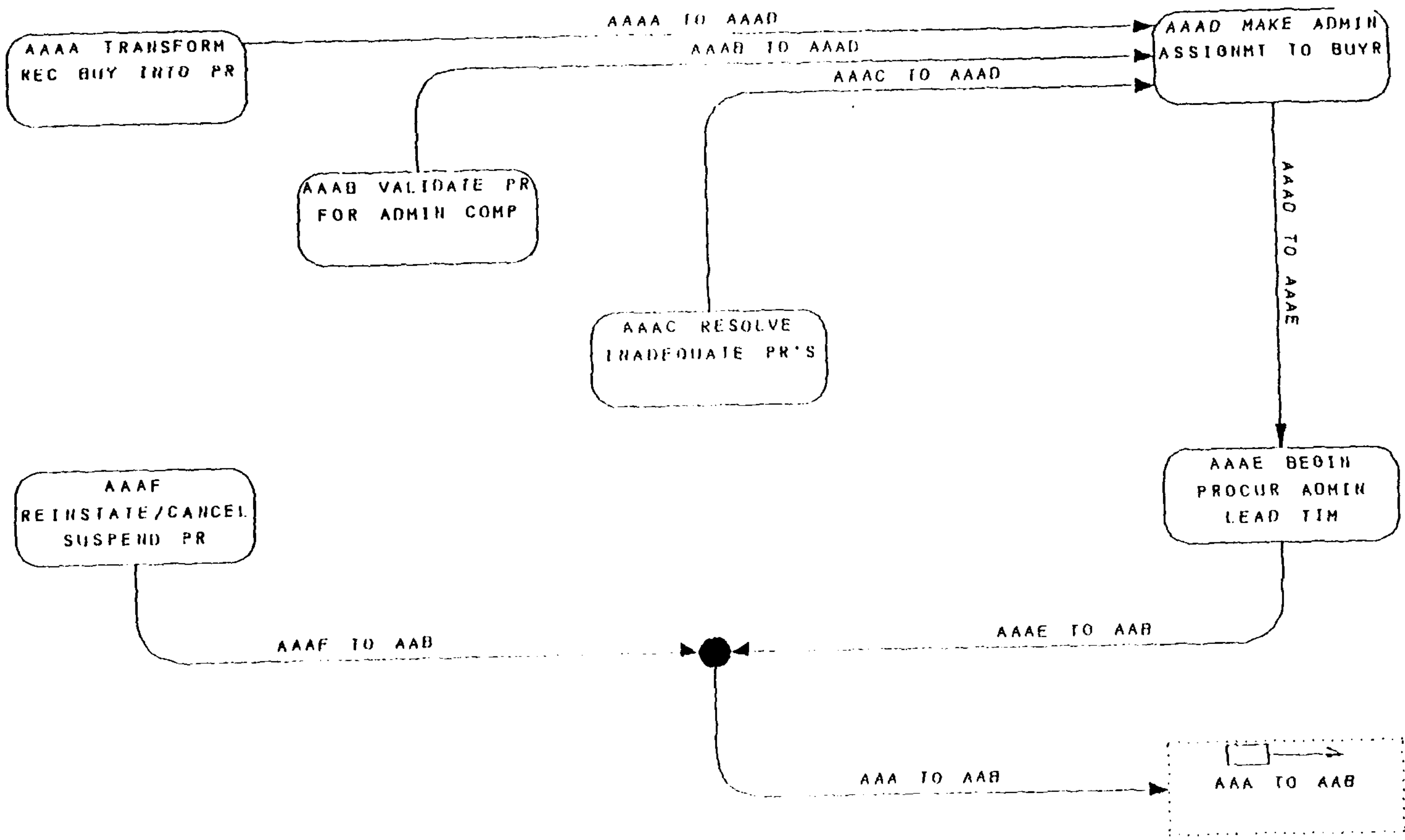


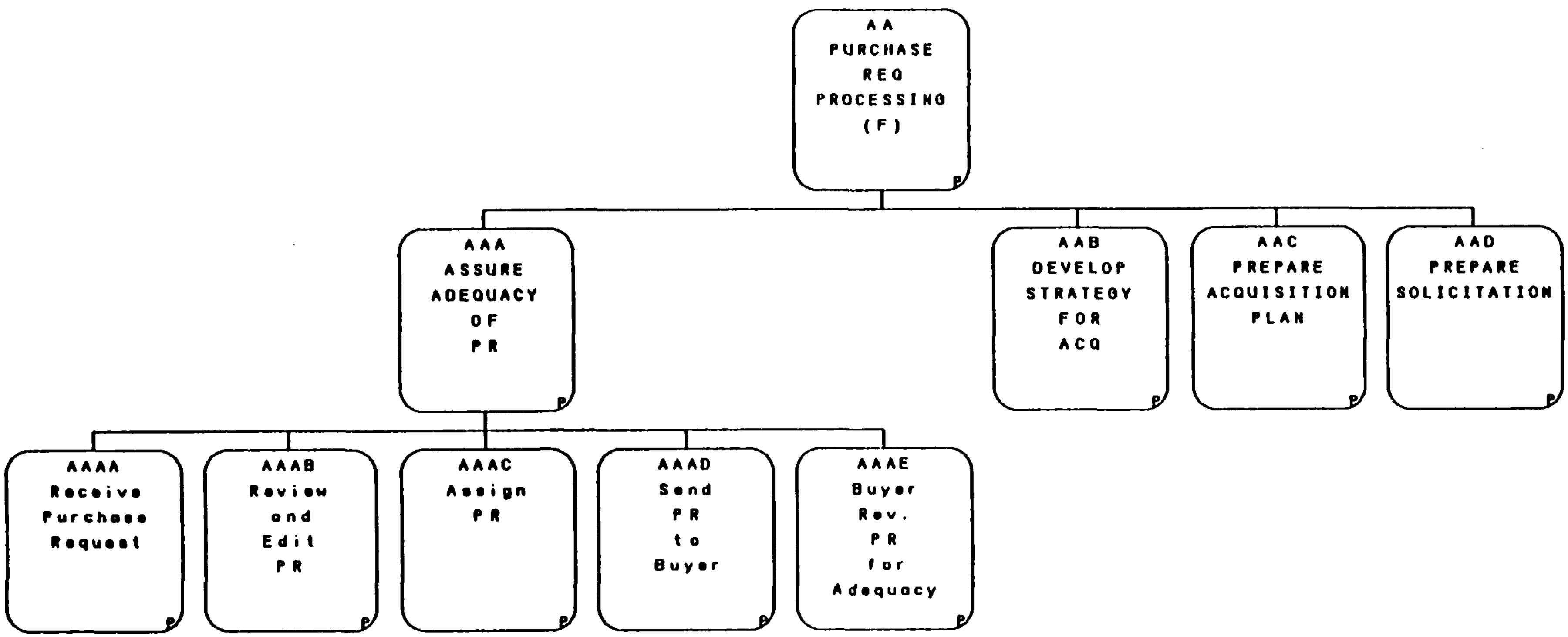
Figure 2.2.7-5 IEW Process Decomposition Diagram (Level 0 thru 1)



ASSURE ADEQUACY OF PR

18, 1990 12:51:28

Figure 2.2.7-6 IEW Level 1 Dependency Diagram



AA PURCHASE REQ PROCESSING (F)

Figure 2.2.7-7 IEW Process Decomposition Diagram (Level 0 thru 2)

Information Engineering Workbench Report
Object Summary Report
July 3, 1990 10:05:07 NEWUSER V06 Page 1

Process AAAB VALIDATE PR FOR ADMIN COMP

PROPERTIES:

DEFINITION:
VALIDATE PR FOR ADMINISTRATIVE COMPLETENESS

THIS PROCESS REVIEWS THE COMPLETE PR TO ENSURE THAT ALL THE LANGUAGE I CORRECT AND COMPLETE, FOR EXAMPLE:

A. VALIDATE DESCRIPTIVE NSN DATA
B. REVIEW TECHNICAL DATA FILE (ITEM DATA)
C. REVIEW PAST BUY HISTORY (CONTRACTS). CURRENT AND CLOSED CONTRACTS FOR THE LAST FIVE YEARS (CONTRACT HISTORY)
D. REVIEW CONTRACTING GUIDANCE DATA
E. ENSURE THAT COMMITMENT AUTHORITY HAS BEEN ESTABLISHED

Figure 2.2.7-8 IEW Process Report (Process AAAB)

2.2 APPENDIX A - DETAILED IEW PROCEDURES

2.2 DECOMPOSE PROCESSES

2.2.1 PURPOSE

2.2.2 COMPONENTS/TERMS

2.2.3 INPUT PRODUCTS

2.2.4 GENERAL PROCEDURES

2.2.4.1 REVIEW LIA CRUD ASSOCIATION MATRIX

2.2.4.1.1 LOGON TO PLANNING WORKBENCH
2.2.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'ASSOCIATION MATRIX'
2.2.4.1.3 SELECT 'PROCESS' IN THE TOP PORTION OF THE DIALOGUE BOX
2.2.4.1.4 SELECT 'BY ENTITY TYPE' IN THE BOTTOM PORTION OF THE DIALOGUE BOX AND CLICK ON THE 'PROCEED' RADIO BUTTON
2.2.4.1.5 TO DISPLAY A PARTICULAR SET OF PROPERTIES

2.2.4.1.5.1 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SHOW PROPERTIES'
2.2.4.1.5.2 SELECT THE TYPE OF PROPERTIES YOU WISH DISPLAYED ('ACTION' FOR 'CRUD' PROPERTIES OR 'LIFE CYCLE STAGE' FOR LIFE CYCLE SEQUENCES)

2.2.4.1.6 TO CHANGE A PROPERTY (ADD, MODIFY, OR ERASE)

2.2.4.1.6.1 CLICK ON THE BOX AT THE JUNCTION OF THE PROCESS AND ENTITY WHOSE RELATIONSHIP ENGENDERS THE PROPERTIES YOU WISH TO CHANGE
2.2.4.1.6.2 TYPE IN THE PROPERTIES THAT CORRECTLY DESCRIBE THE RELATIONSHIP OF THE GIVEN PROCESS AND ENTITY (ENTER BLANKS TO WIPE OUT AN EXISTING PROPERTY)

2.2.4.2 REVIEW FUNCTION, PROCESS, AND ENTITY REPORTS

2.2.4.2.1 LOGON TO PLANNING WORKBENCH
2.2.4.2.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'OBJECT LIST'
2.2.4.2.3 CLICK ON THE RADIO BOX NEXT TO THE TYPE OF THE OBJECT WHOSE REPORT YOU WISH TO REVIEW ('FUNCTION', 'PROCESS', OR 'ENTITY TYPE'), AND CLICK ON THE 'PROCEED' RADIO BUTTON
2.2.4.2.4 SELECT THE PARTICULAR OBJECT YOU WANT (ONLY ONE AT A TIME)
2.2.4.2.5 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DETAILS'

2.2.4.3 SELECT AND DECOMPOSE PROCESSES

2.2.4.4 DEVELOP PROCESS DEPENDENCY DIAGRAMS

2.2.4.4.1 LOGON TO ANALYSIS WORKBENCH
2.2.4.4.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DATA FLOW DIAGRAM'
2.2.4.4.3 CLICK ON THE 'FIND' RADIO BUTTON IN THE DIALOGUE BOX

2.2.4.4.4 SELECT THE PROCESS WHOSE SUBPROCESSES YOU WISH TO ARRANGE WITHIN A PROCESS DEPENDENCY DIAGRAM

2.2.4.4.5 REVIEW THE IEW ANALYSIS WORKBENCH MANUAL FOR DETAILS REGARDING THE CREATION OF DATA FLOW DIAGRAMS

2.2.4.5 DEVELOP PROCESS DECOMPOSITION DIAGRAMS

2.2.4.5.1 LOGON TO ANALYSIS WORKBENCH

2.2.4.5.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DECOMPOSITION DIAGRAM'

2.2.4.5.3 CLICK ON THE RADIO BUTTON NEXT TO THE WORD 'PROCESS', AND THEN CLICK ON THE 'FIND' RADIO BUTTON

2.2.4.5.4 SELECT THE PROCESS WHOSE DECOMPOSITION YOU WISH TO REVIEW/CREATE/MODIFY, AND CLICK ON THE 'PROCEED' RADIO BUTTON

2.2.4.5.5 REVIEW THE IEW ANALYSIS WORKBENCH MANUAL FOR DETAILS REGARDING THE USE OF THE DECOMPOSITION DIAGRAMMER

2.2 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.2 DECOMPOSE PROCESSES

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.2.1 PURPOSE

The purpose of these PC Dictionary procedures is to explain how to capture and report the information that is gathered while decomposing processes.

2.2.2 COMPONENTS/TERMS

2.2.3 INPUT PRODUCTS

2.2.3.3 Entity Reports

Reference section 1.3 output products.

2.2.4 GENERAL PROCEDURES

2.2.4.6 Define characteristics of in-scope processes
(Add new children Processes)

2.2.4.6.1 Add each new Process, following Naming Conventions.
2.2.4.6.2 Edit Catalog.
2.2.4.6.3 Add Catalog of PROCESS.
2.2.4.6.4 Add another Catalog of CONTRACTOR PROFILE.
2.2.4.6.5 Save Catalogs.
2.2.4.6.6 Edit Decomposition-Text.
2.2.4.6.7 Enter any textual information that will help in later decomposition of the process being defined.
2.2.4.6.8 Save Decomposition-Text.
2.2.4.6.9 Edit Description.
2.2.4.6.10 Enter text describing the process.
2.2.4.6.11 Save Description.
2.2.4.6.12 Edit any other attributes as needed.
2.2.4.6.13 Save new Process.
(Update previous level parent Processes/Functions)
2.2.4.6.14 Edit previous level Process/Function.
2.2.4.6.15 Edit Contains.
2.2.4.6.16 Enter name(s) of children Processes, or select from F2 lookup list.
2.2.4.6.17 Save Contains.
2.2.4.6.18 Edit any other attributes as needed.
2.2.4.6.19 Save Process/Function.

2.2.5 OUTPUT PRODUCTS

2.2.5.3 Process Reports
(Refer to decomposition diagram)

2.2.5.3.1 Refer to Member Definition report procedures in Appendix D,

GENERAL PC DICTIONARY PROCEDURES.

2.2.5.3.2 Select one process from decomposition diagram.
2.2.5.3.3 Run report.
2.2.5.3.4 Repeat for each process on the diagram. (This method allows easy updating to the hardcopy products by providing the ability to edit each process and reprint it without having to print the whole list again.)
2.2.5.3.5 Place hardcopy report in notebook.

2.2.5.4 Process Decomposition Report

2.2.5.4.1 Select QUERY from MAIN MENU.
2.2.5.4.2 Select WHAT CONSTITUTES from QUERY menu.
2.2.5.4.3 Select INDIRECTLY.
2.2.5.4.4 Select Function or Process that is at the top of the hierarchy.
2.2.5.4.5 Run Report.

2.3 ASSOCIATE PROCESSES AND ENTITIES

In this step the Functional and Data Architecture are related together via association matrices. First, the "CRUD" actions which are performed by each process on the entities are identified. Next, wherever processes perform CRUD actions on an entity, the sequence of the performance of the processes is identified.

2.3.1 DEVELOP CRUD MATRIX

Figure 2.3.1-1 Step Overview
Figure 2.3.1-2 Step Products
Figure 2.3.1-3 Step Components

2.3.1.1 Purpose
2.3.1.2 Components

2.3.1.2.1 Entities
2.3.1.2.2 Processes
2.3.1.2.3 Action

2.3.1.3 Input Products

2.3.1.3.1 CRUD Matrix (empty)

2.3.1.4 General Procedures

2.3.1.4.1 Display empty CRUD
2.3.1.4.2 Identify Actions

2.3.1.5 Outputs

2.3.1.5.1 CRUD Matrix (completed)

2.3.1.6 Rules

2.3.1.6.1 Inheritance
2.3.1.6.2 Restrictions on Children
2.3.1.6.3 Data Control

2.3.1.7 Examples

Figure 2.3.1.7-1 Sample CRUD (empty cells for current decomposition level
Figure 2.3.1.7-2 Sample CRUD (completed cells for current decomposition level)

2.3.1 Appendix A - Detailed IEW Procedures
2.3.1 Appendix B - Detailed PC Dictionary Procedures

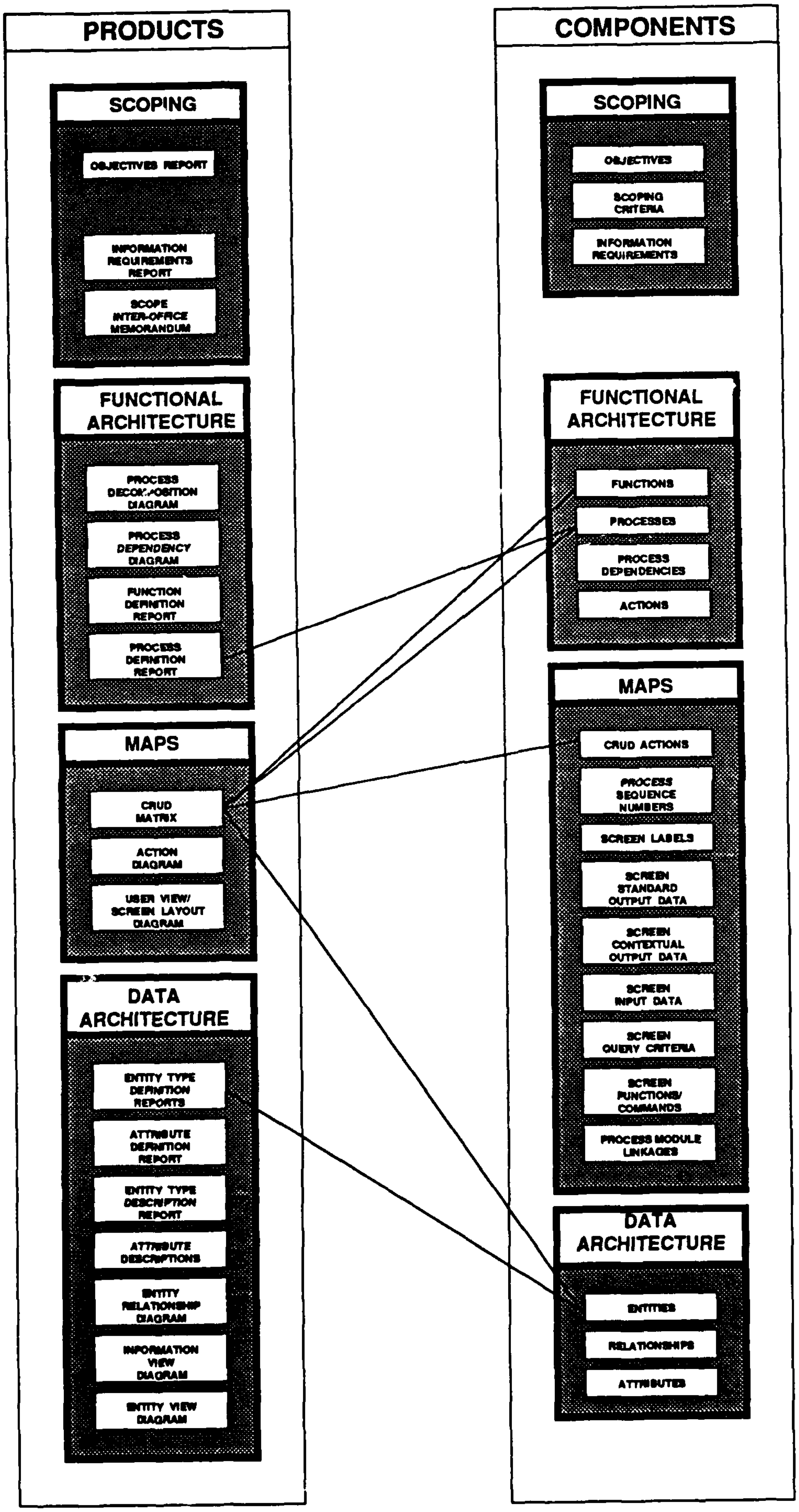


FIGURE 2.3.1-1
STEP OVERVIEW

2.3.1 DEVELOP CRUD MATRIX STEPS / PRODUCTS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. DISPLAY EMPTY CRUD MATRIX									R									
2. IDENTIFY ACTIONS								R	C			R						

FIGURE 2.3.1-2
STEP PRODUCTS

COMPONENTS 2.3.1 DEVELOP CRUD MATRIX STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. DISPLAY EMPTY CRUD MATRIX					R			R											
2. IDENTIFY ACTIONS								C											

FIGURE 2.3.1-3
STEP COMPONENTS

2.3.1 DEVELOP CRUD MATRIX

2.3.1.1 Purpose

The purpose of this step is to map the Logical Functional Architecture (Processes) to the Logical Data Architecture (Entities) at each level of Global Analysis. The mapping is accomplished by identifying the Actions of processes on entities.

2.3.1.2 Components

2.3.1.2.1 Entities

2.3.1.2.2 Processes

2.3.1.2.3 Action

An action is the component that maps the Functional Architecture to the Data Architecture at both the Conceptual and Logical levels of the Information Architecture. At the Conceptual level, Functions are mapped to Entities. At the Logical level, Processes are mapped to Entities. The action identifies how functions or processes use Entity data. There are four types of use (Actions) CREATE an Entity occurence, RETRIEVE an Entity occurence, UPDATE data within an Entity occurence, and ARCHIVE an Entity occurence. A blank cell implies no action. UPDATE is used when adding or changing data within an Entity occurrence.

2.3.1.3 Input Products

2.3.1.3.1 CRUD Matrix (empty) (Figure 2.3.1.7-1)

2.3.1.4 General Procedures

2.3.1.4.1 Display empty CRUD

Construct a Matrix Diagram with Processes for the rows and Entities for the columns. The cells for the current level of Global Analyis will be left blank. Fill in the higher levels (parents, grandparents, etc.) based on previous CRUD analyses.

2.3.1.4.2 Identify Actions

For each cell of the current level of Global Analysis, indicate the action of the Process on the Entity. Follow the Inheritance, Restrictions on Children, and Data Control rules. Change the parent action when appropriate.

2.3.1.5 Outputs

2.3.1.5.1 CRUD Matrix (completed) (Figure 2.3.1.7-2)

2.3.1.6 Rules

2.3.1.6.1 Inheritance

The Action of a parent process on an Entity must be performed by at least one of the children.

2.3.1.6.2 Restrictions on Children

The Actions of the children may vary from the Actions of the parent but are constrained as follows:

If the parent's Action is Create, the children may Create, Update or Retrieve.

If the parent's Action is Update, the children may Update or Retrieve.

If the parents' Action is Read, the children may Read.

If the parent's Action is Archive, the children may Update, Read, or Archive.

2.3.1.6.3 Data Control

For each level, one and only one Process can create an Entity occurence.

For each level, one and only one Process can delete an Entity occurence.

2.3.1.7 Examples

Figure 2.3.1.7-1 Sample CRUD (empty cells for current decomposition level

Figure 2.3.1.7-2 Sample CRUD (completed cells for current decomposition level

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)			
AAA ASSURE ADEQUACY OF PR			
AAAA Receive Purchase Request			
AAAB Review and Edit PR			
AAAC Assign PR			
AAAD Send PR to Buyer			
AAAE Buyer Rev. PR for Adequacy			

Process involves Entity Type

Figure 2.3.1.7-1 Sample CRUD

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	R
AAA ASSURE ADEQUACY OF PR	R	R	R
AAAA Receive Purchase Request			
AAAB Review and Edit PR	R	R	R
AAAC Assign PR			
AAAD Send PR to Buyer			
AAAE Buyer Rev. PR for Adequacy			

Process involves Entity Type

Figure 2.3.1.7-2 Sample CRUD

2.3.1 APPENDIX A - DETAILED IEW PROCEDURES

2.3.1 DEVELOP CRUD MATRIX

2.3.1.1 PURPOSE

2.3.1.2 COMPONENTS/TERMS

2.3.1.3 INPUT PRODUCTS

2.3.1.4 GENERAL PROCEDURES

2.3.1.4.1 DEVELOP CRUD MATRIX

2.3.1.4.1.1 LOGON TO PLANNING WORKBENCH
2.3.1.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'ASSOCIATION MATRIX'
2.3.1.4.1.3 SELECT 'PROCESS' IN THE TOP PORTION OF THE DIALOGUE BOX
2.3.1.4.1.4 SELECT 'BY ENTITY TYPE' IN THE BOTTOM PORTION OF THE DIALOGUE BOX AND CLICK ON THE 'PROCEED' RADIO BUTTON
2.3.1.4.1.5 TO DISPLAY A PARTICULAR SET OF PROPERTIES

2.3.1.4.1.5.1 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SHOW PROPERTIES'
2.3.1.4.1.5.2 SELECT THE TYPE OF PROPERTIES YOU WISH DISPLAYED ('ACTION' FOR 'CRUD' PROPERTIES OR 'LIFE CYCLE STAGE' FOR LIFE CYCLE SEQUENCES)

2.3.1.4.1.6 TO CHANGE A PROPERTY (ADD, MODIFY, OR ERASE)

2.3.1.4.1.6.1 CLICK ON THE BOX AT THE JUNCTION OF THE PROCESS AND ENTITY WHOSE RELATIONSHIP ENGENDERS THE PROPERTIES YOU WISH TO CHANGE
2.3.1.4.1.6.2 TYPE IN THE PROPERTIES THAT CORRECTLY DESCRIBE THE RELATIONSHIP OF THE GIVEN PROCESS AND ENTITY (ENTER BLANKS TO WIPE OUT AN EXISTING PROPERTY)

2.3.1 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.3.1 DEVELOP CRUD MATRIX

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.3.1.1 PURPOSE

The purpose of these PC Dictionary procedures is to explain how to capture and report the information that is gathered while developing the CRUD matrix. 2.3.1.2 COMPONENTS/TERMS

2.3.1.3 INPUT PRODUCTS

2.3.1.4 GENERAL PROCEDURES

2.3.1.4.2 Identify Actions (Refer to IEW CRUD matrix)

2.3.1.4.2.1 Edit existing Process.
2.3.1.4.2.2 Edit SEE.
2.3.1.4.2.3 Add name of Entity on which this process acts, or select from F2 lookup list.
2.3.1.4.2.4 Edit CLAUSE.
2.3.1.4.2.5 Enter the text FOR CREATE/READ/UPDATE/DELETE (only the ones that apply for this process on this entity).
2.3.1.4.2.6 Save SEE.
2.3.1.4.2.7 Repeat for each Entity.
2.3.1.4.2.8 Edit any other attributes as needed.
2.3.1.4.2.9 Save Process.
2.3.1.4.2.10 Repeat for each process with action(s) in the matrix.

2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX

2.3.2-1 Step Overview
2.3.2-2 Step Products
2.3.2-3 Step Comments

2.3.2.1 Purpose
2.3.2.2 Components

2.3.2.2.1 Entities
2.3.2.2.2 Processes
2.3.2.2.3 Entity Life Cycle Sequence Number

2.3.2.3 Input Products

2.3.2.3.1 (empty) Association Matrix
2.3.2.3.2 (completed) CRUD Matrix for current level of decomposition

2.3.2.4 General Procedures

2.3.2.4.1 Display empty Association Matrix
2.3.2.4.2 Identify life cycle sequences

2.3.2.5 Outputs

2.3.2.5.1 Completed Entity Life Cycle Association Matrix

2.3.2.6 Rules

2.3.2.6.1 Actions
2.3.2.6.2 Inheritance

2.3.2.7 Area Examples

Figure 2.3.2.7-1 Empty Association Matrix for Current Level of Decomposition (Contractor Profile Subject Area)
Figure 2.3.2.7-2 Completed CRUD for Current Level of Decomposition (Contractor Profile Subject Area)

2.3.2 Appendix A - Detailed IEW Procedures
2.3.2 Appendix B - Detailed PC Dictionary Procedures

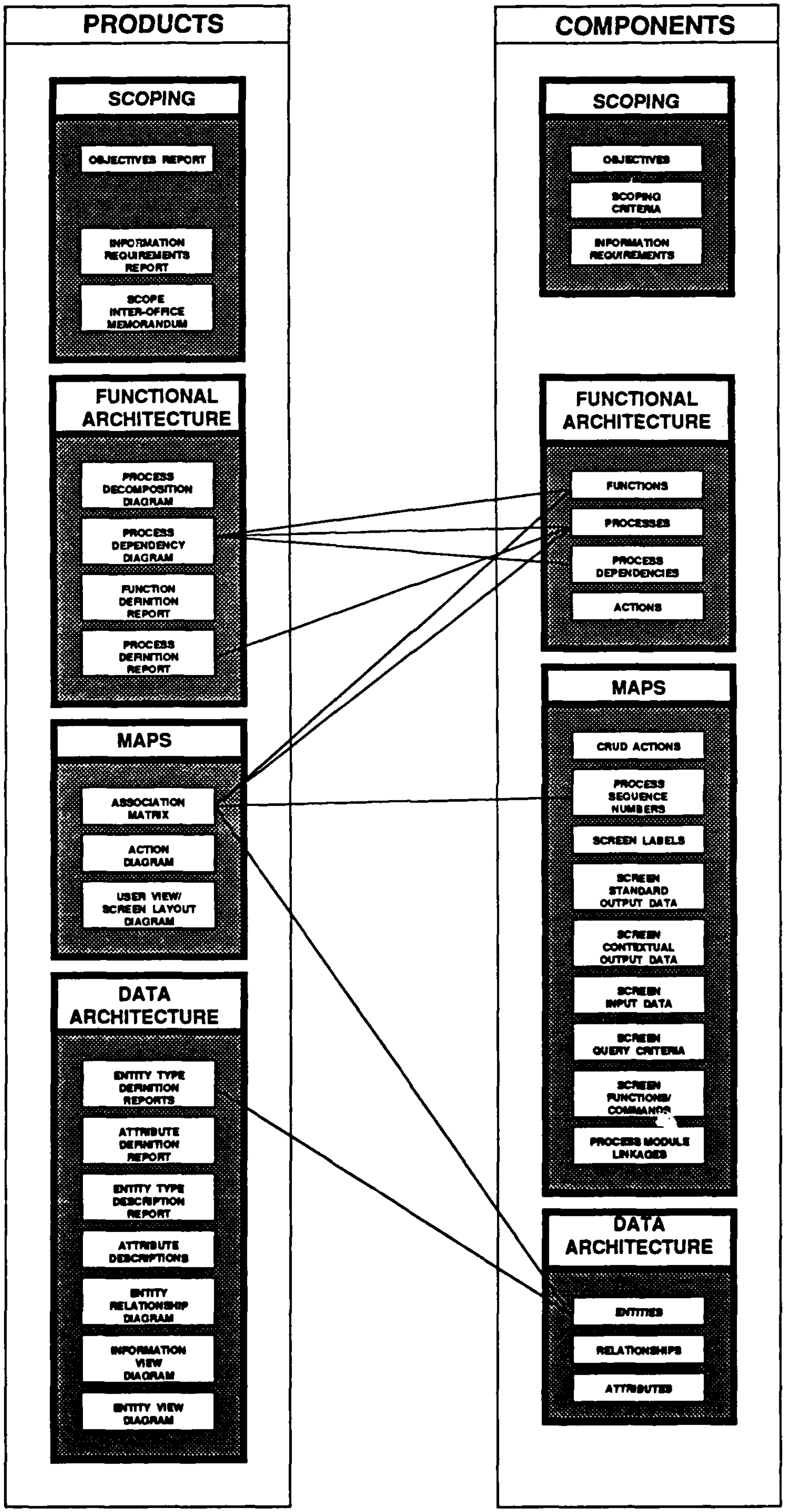


FIGURE 2.3.2-1
STEP OVERVIEW

PRODUCTS / 2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	ASSOCIATION MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. DISPLAY EMPTY ASSOCIATION MATRIX									C									
2. IDENTIFY LIFE CYCLE SEQUENCES						R		R	U			R						

FIGURE 2.3.2-2
STEP PRODUCTS

2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX STEPS / COMPONENTS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. DISPLAY EMPTY ASSOCIATION MATRIX					R														
2. IDENTIFY LIFE CYCLE SEQUENCES						R			C								R		

FIGURE 2.3.2-3
STEP COMPONENTS

2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX

2.3.2.1 Purpose

To validate the Logical Functional Architecture (Processes) by assuring the data required by the Processes are acquired by Processes. The validation is accomplished through sequencing processes according to the life cycle of Entities.

2.3.2.2 Components

2.3.2.2.1 Entities

2.3.2.2.2 Processes

2.3.2.2.3 Entity Life Cycle Sequence Number

An Entity Life Cycle Sequence Number orders processes according to the life cycle of an Entity. The number is sequential.

2.3.2.3 Input Products

2.3.2.3.1 Association Matrix (empty) (Figure 2.3.2.7-1)

2.3.2.3.2 CRUD Matrix (completed) for current level of decomposition (Figure 2.3.2.7-2)

2.3.2.4 General Procedures

2.3.2.4.1 Display empty Association Matrix

Construct a Matrix Diagram with Processes for the rows and Entities for the columns. The cells for the current Global Analyis level will be blank. Fill in the Life Cycle Numbers for the higher levels (parents, grandparents, etc.).

2.3.2.4.2 Identify life cycle sequences

For each entity, number the processes which have Actions based on the life cycle of that entity. Reference the CRUD Matrix when sequencing the processes. Numbering is accomplished by entering sequential numbers to arrange processes according to the life cycle of an entity. The intent is to show the order in which processes acquire (Create or Update) data for use (Update or Read) by other processes. Reviewing the sequence may point out error conditions requiring correction. Two general error conditions are data use without acquisition and data acquisition without use.

2.3.2.5 Outputs

2.3.2.5.1 Completed Entity Life Cycle Association Matrix (2.3.2.7-3)

2.3.2.6 Rules

2.3.2.6.1 Actions

Only processes with actions are sequenced. Creates will be first, Updates and Reads may be interspersed, and Archives are last.

2.3.2.6.2 Inheritance

The sequence of processing at one level cannot conflict with the sequencing at a higher level.

2.3.2.7 Examples

Figure 2.3.2.7-1 Empty Association Matrix for Current Level of Decomposition (Contractor Profile Subject Area)

Figure 2.3.2.7-2 Completed CRUD for Current Level of Decomposition (Contractor Profile Subject Area)

Figure 2.3.2.7-3 Completed Association Matrix for Current Level of Decomposition (Contractor Profile Subject Area)

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)			
AAA ASSURE ADEQUACY OF PR			
AAAA Receive Purchase Request			
AAAB Review and Edit PR			
AAAC Assign PR			
AAAD Send PR to Buyer			
AAAE Buyer Rev. PR for Adequacy			

Process involves Entity Type

Figure 2.3.2.7-1 Empty Association Matrix

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	R
AAA ASSURE ADEQUACY OF PR	R	R	R
AAAA Receive Purchase Request			
AAAB Review and Edit PR	R	R	R
AAAC Assign PR			
AAAD Send PR to Buyer			
AAAE Buyer Rev. PR for Adequacy			

Process involves Entity Type

Figure 2.3.2.7-2 Completed CRUD for Current Level

2.3.2 APPENDIX A - DETAILED IEW PROCEDURES

2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX

2.3.2.1 PURPOSE

2.3.2.2 COMPONENTS/TERMS

2.3.2.3 INPUT PRODUCTS

2.3.2.4 GENERAL PROCEDURES

2.3.2.4.1 DEVELOP ENTITY LIFE CYCLE MATRIX

2.3.2.4.1.1 LOGON TO PLANNING WORKBENCH
2.3.2.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'ASSOCIATION MATRIX'
2.3.2.4.1.3 SELECT 'PROCESS' IN THE TOP PORTION OF THE DIALOGUE BOX
2.3.2.4.1.4 SELECT 'BY ENTITY TYPE' IN THE BOTTOM PORTION OF THE DIALOGUE BOX AND CLICK ON THE 'PROCEED' RADIO BUTTON
2.3.2.4.1.5 TO DISPLAY A PARTICULAR SET OF PROPERTIES

2.3.2.4.1.5.1 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SHOW PROPERTIES'
2.3.2.4.1.5.2 SELECT THE TYPE OF PROPERTIES YOU WISH DISPLAYED ('ACTION' FOR 'CRUD' PROPERTIES OR 'LIFE CYCLE STAGE' FOR LIFE CYCLE SEQUENCES)

2.3.2.4.1.6 TO CHANGE A PROPERTY (ADD, MODIFY, OR ERASE)

2.3.2.4.1.6.1 CLICK ON THE BOX AT THE JUNCTION OF THE PROCESS AND ENTITY WHOSE RELATIONSHIP ENGENDERS THE PROPERTIES YOU WISH TO CHANGE
2.3.2.4.1.6.2 TYPE IN THE PROPERTIES THAT CORRECTLY DESCRIBE THE RELATIONSHIP OF THE GIVEN PROCESS AND ENTITY (ENTER BLANKS TO WIPE OUT AN EXISTING PROPERTY)

2.3.2 APPENDIX B DETAILED PC DICTIONARY PROCEDURES

2.3.2 DEVELOP ENTITY LIFE CYCLE MATRIX

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.3.2.1 PURPOSE

The purpose of these PC Dictionary procedures is to explain how to capture and report the information that is gathered while developing the entity life cycle matrix.

2.3.2.2 COMPONENTS/TERMS

2.3.2.3 INPUT PRODUCTS

2.3.2.4 GENERAL PROCEDURES

2.3.2.4.2 Identify Life Cycle Sequences (Refer to IEW life cycle matrix.)

2.3.2.4.2.1 Edit existing Process.
2.3.2.4.2.2 Edit SEE.
2.3.2.4.2.3 Edit CLAUSE.
2.3.2.4.2.5 Edit the text FOR CREATE/READ/UPDATE/DELETE (only the ones that apply for this process on this entity) to include the life cycle sequence number.
2.3.2.4.2.6 Save SEE.
2.3.2.4.2.7 Repeat for each Entity.
2.3.2.4.2.8 Edit any other attributes as needed.
2.3.2.4.2.9 Save Process.
2.3.2.4.2.10 Repeat for each process with sequences(s) in the matrix.

2.4 REVIEW SCOPE

In this step the components of the Functional and Data Architecture which are in-scope are identified by applying the scoping criteria (i.e., the objectives and the information requirements). Those processes which are out-of-scope are "marked" with an "*" and are not further decomposed. Entities which are out-of-scope are noted for later inclusion in a scoping memorandum.

2.4.1 SELECT ENTITIES

Figure 2.4.1-1 Step Overview
Figure 2.4.1-2 Step Products
Figure 2.4.1-3 Step Components

2.4.1.1 Purpose

2.4.1.2 Component/Terms

2.4.1.2.1 Entity Type
2.4.1.2.2 Information Requirement

2.4.1.3 Input Products

2.4.1.3.1 Subject Area Information Requirements
2.4.1.3.2 Subject Area Entity Relationship Disagra
2.4.1.3.3 Subject Area Entity Type List
2.4.1.3.4 Subject Area Entity Type Report

2.4.1.4 General Procedures

2.4.1.4.1 Examine Entity Types
2.4.1.4.2 Review scope
2.4.1.4.3 Update Existing Entity Types
2.4.1.4.4 Add new Entity Types, if needed
2.4.1.4.5 Update ERD

2.4.1.5 Output Products

2.4.1.5.1 Subject Area ERD
2.4.1.5.2 Subject Area Entity Type List
2.4.1.5.3 Subject Area Entity Type Report

2.4.1.6 Rules

2.4.1.6.1 Adherence to scoping criteria
2.4.1.6.2 True Entity Type

2.4.1.7 Examples

Figure 2.4.1.7-1 Subject Area ERD
Figure 2.4.1.7-2 Subject Area Entity Type List

2.4.1 Appendix A - Detailed IEW Procedures
2.4.1 Appendix B - Detailed PC Dictionary Procedures

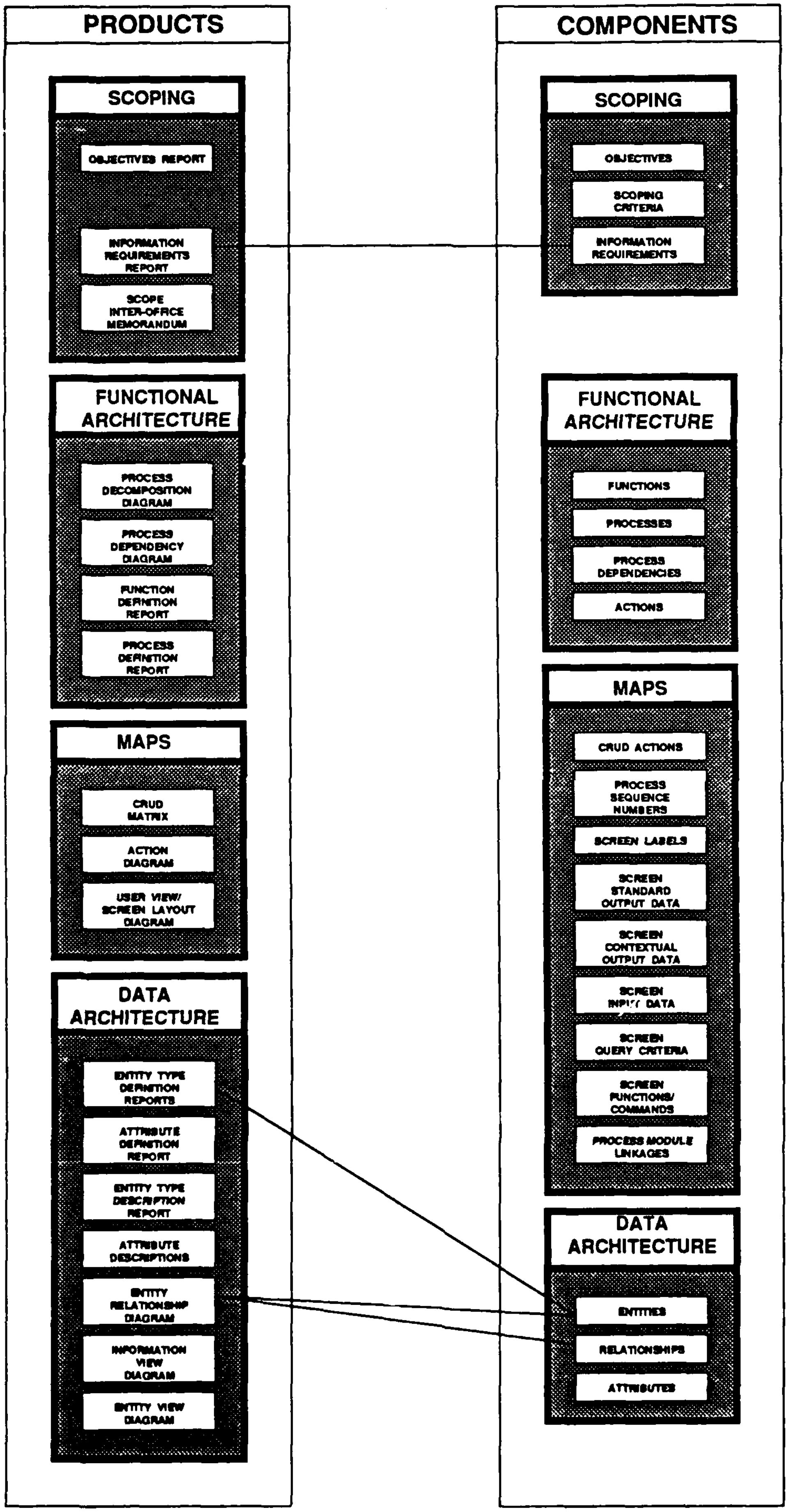


FIGURE 2.4.1-1
STEP OVERVIEW

2.4.1 SELECT ENTITIES STEPS / PRODUCTS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM	PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. EXAMINE ENTITY TYPES											R						
2. REVIEW SCOPE		R															
3. UPDATE EXISTING ENTITY TYPES											U						
4. ADD NEW ENTITY TYPES, IF NEEDED											C						
5. UPDATE ERD															U		

FIGURE 2.4.1-2
STEP PRODUCTS

COMPONENTS / 2.4.1 SELECT ENTITIES STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. EXAMINE ENTITY TYPES																	R		
2. REVIEW SCOPE			R																
3. UPDATE EXISTING ENTITY TYPES																	U		
4. ADD NEW ENTITY TYPES, IF NEEDED																	C		
5. UPDATE ERD																	U	U	

FIGURE 2.4.1-3
STEP COMPONENTS

2.4.1 SELECT ENTITIES

2.4.1.1 Purpose

The purpose of this step is to examine the Entity types that have been discussed during the current level of Global Analysis and decide which are within the scope, which need to be brought into scope and which need to be deleted from the scope. This will identify which entity types need to be fully attributed and which will only be needed for a reference to another subject area.

2.4.1.2 Components/Terms

Following are the components and/or terms that will be used during this step of Global Analysis.

2.4.1.2.1 Entity Type

2.4.1.2.2 Information Requirement

2.4.1.3 Input Products

2.4.1.3.1 Subject Area Information Requirements

This report will define the Subject Area Information Requirements as identified in 1.1 Define Scoping Criteria. (See OUTPUT PRODUCTS from 1.1)

2.4.1.3.2 Subject Area Entity Relationship Diagram (ERD)

This diagram contains the entity types that were identified during Scoping. (See OUTPUT PRODUCTS from 1.2)

2.4.1.3.3 Subject Area Entity Type List

This list will contain the entity types that were identified during Scoping. (See OUTPUT PRODUCTS from 1.2)

2.4.1.3.4 Subject Area Entity Type Report

This report describes the entity types that were identified during Scoping. (See OUTPUT PRODUCTS from 1.2)

2.4.1.4 General Procedures

2.4.1.4.1 Examine Entity Types

Review all the entity types that have been discussed during the current level of Global Analysis. Identify which are 'true' entity types by comparing the meaning of an Entity type to the current definition of each entity type.

2.4.1.4.2 Review scope

Decide which of the entity types are within the scope by comparing the Subject Area Information Requirements that were defined in 1.2 Define Scoping Criteria with the entity type definitions. Will information about a particular entity type be necessary to satisfy one of the Information Requirements? If the answer is yes, then that entity type is within scope.

2.4.1.4.3 Update Existing Entity Types

Identify the Entity types that were not selected during the Scoping phase, but which are now within the scope. Also identify the Entity types that were selected during the Scoping phase, but which are now not within the scope. These are identified through the cataloging feature of the dictionary. Make any other needed changes to the existing entity types, such as modifying the definitions.

2.4.1.4.4 Add new Entity Types, if needed

Add any new entity types that are now needed for further analysis. These entity types are ones that never existed in the Conceptual Model. Provide proper definitions and names for each.

2.4.1.4.5 Update ERD

Add the new entity types to the ERD with appropriate relationships to the other entity types that are within scope. These relationships are unlabeled; they only represent that a relationship exists.

2.4.1.5 Output Products

2.4.1.5.1 Subject Area ERD (Figure 2.4.1.7-1)

This ERD will show all the entity types and the generic relationships between entity types that are now within scope.

2.4.1.5.2 Subject Area Entity Type List (Figure 2.4.1.7-2)

This list will contain the entity types that are now within scope.

2.4.1.5.3 Subject Area Entity Type Report (reference Figure 2.1.7-2)

This report describes the entity types that are now within scope.

2.4.1.6 Rules

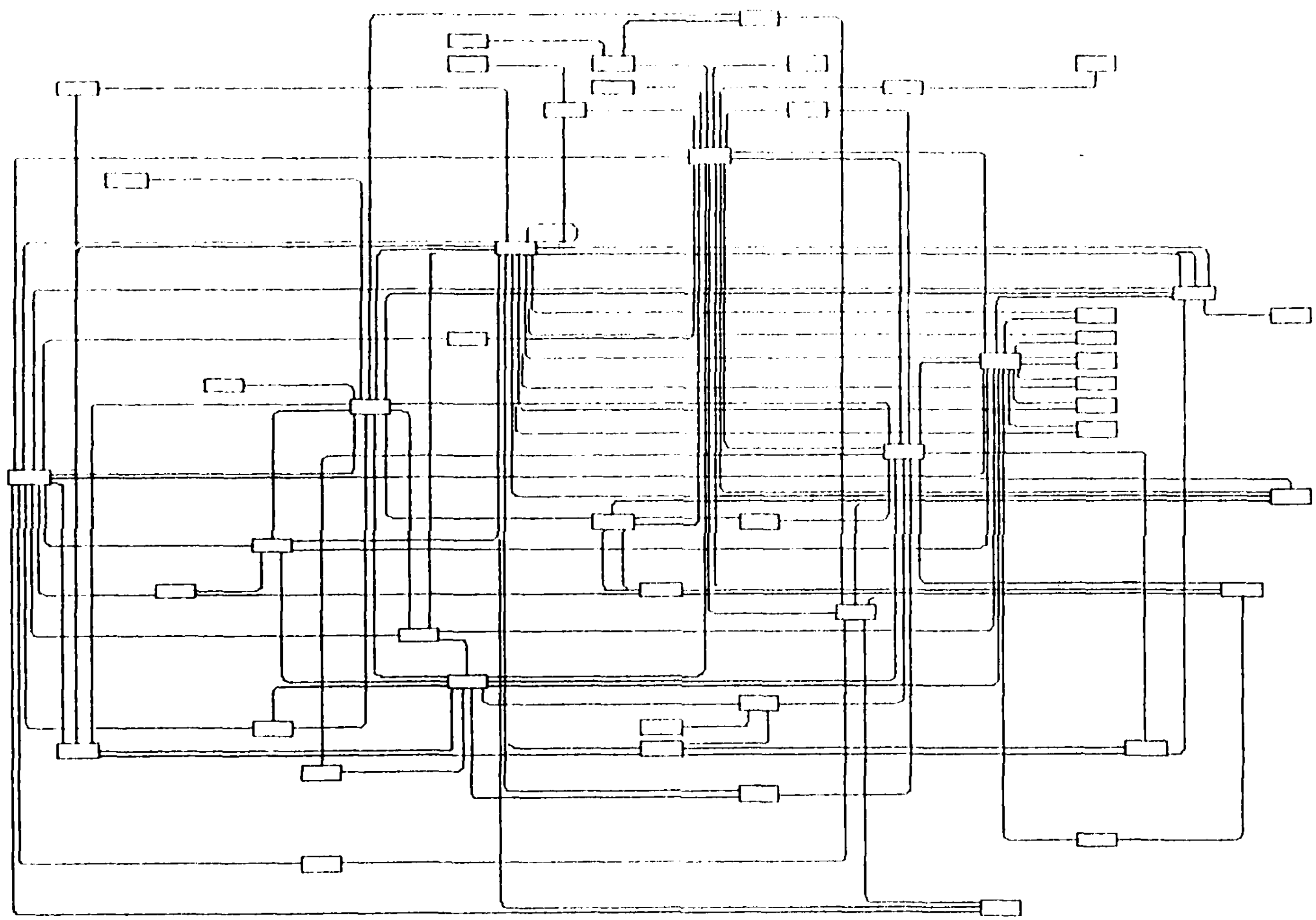
2.4.1.6.1 Adherence to scoping criteria

All chosen entity types must pertain to the Information Requirements established in 1.1 Define Scoping Criteria.

2.4.1.6.2 True Entity Type

An Entity is defined as a person, place, or thing that is (a) of interest to the corporation, (b) capable of being described in real terms, and (c) relevant within the context of the specific environment of the firm. An entity type is a set of these persons, places, or things, all of which have a common name, a common definition, and a common set of descriptors (properties or attributes). (i.e. EMPLOYEE is the entity type: JOHM SMITH, MARY WILSON, and JOHN DOE are entity occurrences for the EMPLOYEE entity type.)

2.4.1.7 Examples



IN-SCOPE

June 14 1990 13.04.12

Figure 2.4.1.7-1 Subject Area FRD

The following members satisfy this condition...
ENTITY AND CONTRACTOR PROFILE.

Member Name	Member Type
EN-ALERT-ACTN	ENTITY
EN-ALERT-ACTN-RSN-TYPE	ENTITY
EN-ALERT-ACTN-TYPE	ENTITY
EN-CLAUS	ENTITY
EN-CLAUS-TYPE	ENTITY
EN-CONTR	ENTITY
EN-CONTR-MOD	ENTITY
EN-CONTR-QL	ENTITY
EN-CONTR-TYPE	ENTITY
EN-DEFCN	ENTITY
EN-DEFCN-TYPE	ENTITY
EN-DID	ENTITY
EN-DISCL	ENTITY
EN-DO	ENTITY
EN-DO-LNITM	ENTITY
EN-ECP	ENTITY
EN-EMPL-CONTR-ROLE	ENTITY
EN-EMPL-CONTR-ROLE-TYPE	ENTITY
EN-FAT-RSLT	ENTITY
EN-GOVAG	ENTITY
EN-GOVAG-CONTR-ROLE	ENTITY
EN-GOVAG-CONTR-ROLE-TYPE	ENTITY
EN-LAB-TEST	ENTITY
EN-LENTY	ENTITY

Figure 2.4.1.7-2 Subject Area Entity Type List

2.4.1 APPENDIX A - DETAILED IEW PROCEDURES

2.4.1 SELECT ENTITIES

There are no IEW procedures for this section.

2.4.1 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.4.1 SELECT ENTITIES

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.4.1.1 PURPOSE

The purpose in these PC DICTIONARY detailed procedures is to explain how to capture and report the information that is gathered while selecting the entities that will be further analyzed.

2.4.1.2 COMPONENT/TERMS

2.4.1.3 INPUT PRODUCTS

See 1.0 Scoping output products.

2.4.1.3.1 Subject Area Information Requirements

2.4.1.3.2 Subject Area Entity Relationship Diagram (ERD)

2.4.1.3.3 Subject Area Entity List

2.4.1.3.4 Subject Area Entity Report

2.4.1.4 GENERAL PROCEDURES

2.4.1.4.1 Examine Entities

2.4.1.4.2 Review scope

2.4.1.4.3 Update Existing Entities
(Edit Entities that are now within scope)

2.4.1.4.3.1 Edit each existing Entity that is now within scope.
2.4.1.4.3.2 Edit the CATALOG attribute.
2.4.1.4.3.3 Add the CATALOG 'CONTRACTOR PROFILE'.
2.4.1.4.3.4 Add another CATALOG 'ENTITY'.
2.4.1.4.3.5 Save CATALOGs.
2.4.1.4.3.6 Edit any other attributes, as needed.
2.4.1.4.3.7 Save Entity.
(Edit Entities that are not now within scope)
2.4.1.4.3.8 Edit each existing Entity that is now not within scope.
2.4.1.4.3.9 Edit the CATALOG attribute.
2.4.1.4.3.10 Delete the CATALOG 'CONTRACTOR PROFILE'.
2.4.1.4.3.11 Save CATALOG.
2.4.1.4.3.12 Edit any other attributes, as needed.
2.4.1.4.3.13 Save Entity.

2.4.1.4.4 Add new Entities, if needed

2.4.1.4.4.1 Select DATA ENTRY from MAIN MENU.

2.4.1.4.4.2 Enter appropriate name, following Naming Conventions found in the Appendix.
2.4.1.4.4.3 Enter appropriate member type or select from look up list [F2].
2.4.1.4.4.4 Enter necessary attributes (reference Appendix D for more details).
2.4.1.4.4.5 Edit the CATALOG attribute.
2.4.1.4.4.6 Add the CATALOG 'CONTRACTOR PROFILE'.
2.4.1.4.4.7 Add another CATALOG 'ENTITY'.
2.4.1.4.4.8 Save CATALOGs.
2.4.1.4.4.9 Save new member [F10].

2.4.1.4.5 Update ERD

See IEW Procedures.

2.4.1.5 OUTPUT PRODUCTS

2.4.1.5.1 Subject Area ERD (Figure 2.4.2.7-1)

See IEW Procedures.

2.4.1.5.2 Subject Area Entity List (Figure 2.4.2.7-2)
(Get a list of all Entities that are within the Subject Area)

2.4.1.5.2.1 Select CATALOGUE from QUERY MENU.
2.4.1.5.2.2 Select query logic, EQUAL.
2.4.1.5.2.3 Enter catalogue name, CONTRACTOR PROFILE, or select from look up list [F2].
2.4.1.5.2.4 Select query logic, EQUAL.
2.4.1.5.2.5 Enter catalogue name, ENTITY, or select from look up list [F2].
2.4.1.5.2.6 Check report destination [ALT-F10].
2.4.1.5.2.7 Start query [F10].

2.4.1.5.3 Subject Area Entity Report (Figure 2.4.2.7-3)
(Get report of Entities)

2.4.1.5.3.1 Select MEMBER DEFINITION from REPORT MENU.
2.4.1.5.3.2 Select the names of all Entities [SPACE BAR] on the previous CATALOG query list.
2.4.1.5.3.3 Check report destination [ALT-F10].
2.4.1.5.3.4 Print report [F10-GO].

2.4.2 SELECT PROCESSES

Figure 2.4.2-1 Step Overview
Figure 2.4.2-2 Step Products
Figure 2.4.2-3 Step Components

2.4.2.1 Purpose
2.4.2.2 Components/Terms

2.4.2.2.1 Process
2.4.2.2.2 Action

2.4.2.2.2.1 Create
2.4.2.2.2.2 Retrieve
2.4.2.2.2.3 Update
2.4.2.2.2.4 Delete

2.4.2.3 Input Products

2.4.2.3.1 CIA CRUD Association Matrix
2.4.2.3.2 Objectives Report
2.4.2.3.3 Information Requirements Report

2.4.2.4 General Procedures

2.4.2.4.1 Review CRUD Association Matrix
2.4.2.4.2 Indicate Out-of-scope Processes
2.4.2.4.3 Review Subject Area Processes

2.4.2.5 Output Products

2.4.2.5.1 LIA Process CRUD Association Matrix
2.4.2.5.2 LIA Process Reports

2.4.2.6 Rules

2.4.2.6.1 Adherence to scoping criteria
2.4.2.6.2 Mutual exclusivity
2.4.2.6.3 Exhaustiveness
2.4.2.6.4 Naming conventions and definitions

2.4.2.7 Examples

Figure 2.4.2.7-1 IEW LIA CRUD Association Matrix (Two Levels of Processes)
Figure 2.4.2.7-2 IEW Process Report (Process AAA)
Figure 2.4.2.7-3 PCD LIA Process List (Two Levels of Processes)
Figure 2.4.2.7-4 PCD Process Report (Function A)
Figure 2.4.2.7-5 IEW LIA Process CRUD Association Matrix
Figure 2.4.2.7-6 IEW LIA Process Report (For Process AAAA)
Figure 2.4.2.7-7 PCD Process Report (For Process AAA)
Figure 2.4.2.7-8 Information Requirements Report

Figure 2.4.2.7-9 Objectives List

2.4.2 Appendix A - Detailed IEW Procedures
2.4.2 Appendix B - Detailed PC Dictionary Procedures

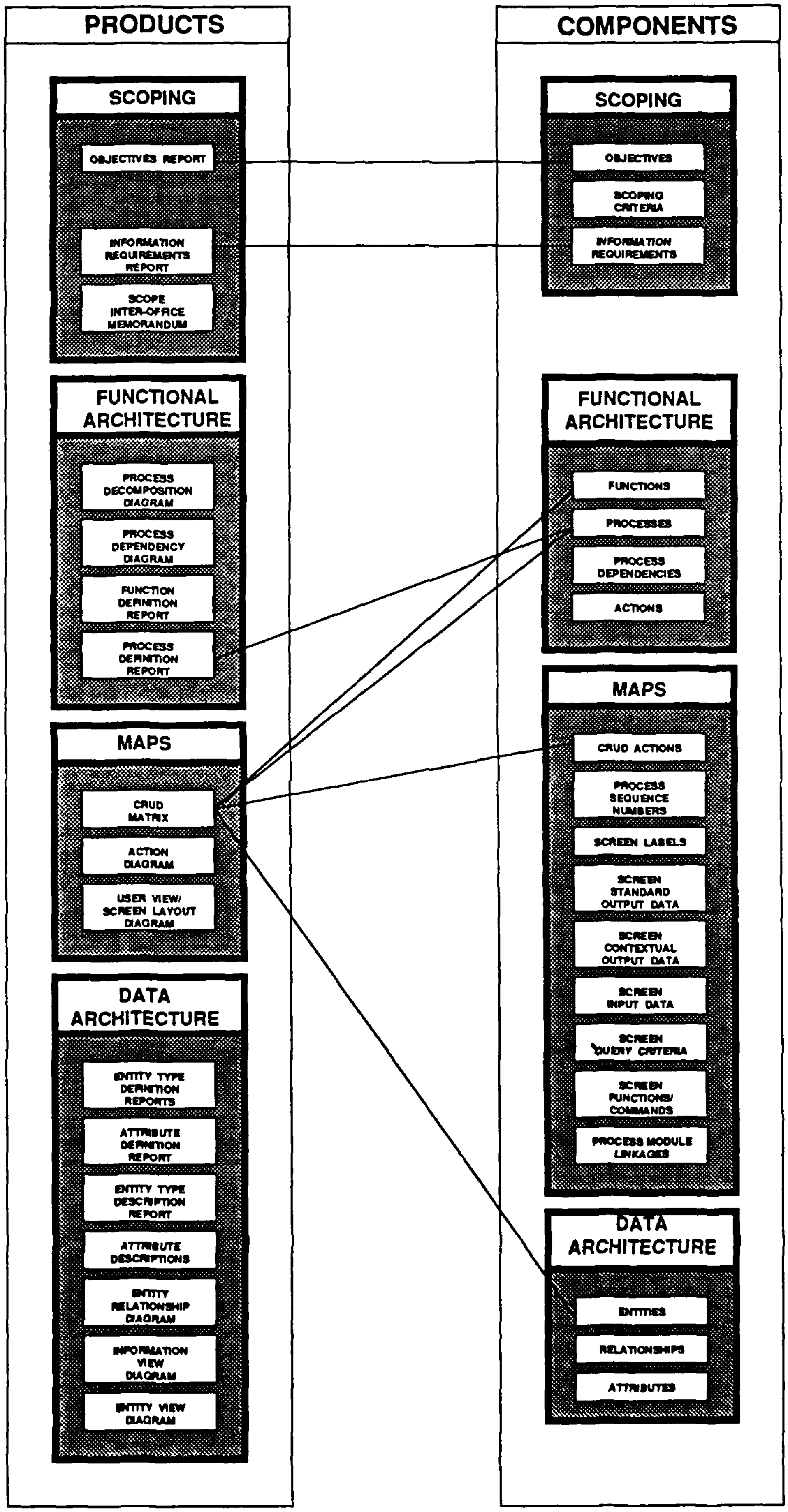


FIGURE 2.4.2-1
STEP OVERVIEW

PRODUCTS / 2.4.2 SELECT PROCESSES STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. REVIEW CRUD ASSOCIATION MATRIX									R									
2. INDICATE OUT-OF-SCOPE PROCESSES	R	R						U										
3. REVIEW SUBJECT AREA PROCESSES								R										

FIGURE 2.4.2-2
STEP PRODUCTS

2.4.2 SELECT PROCESSES STEPS / COMPONENTS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW CRUD ASSOCIATION MATRIX								R											
2. INDICATE OUT-OF-SCOPE PROCESSES	R		R		U														
3. REVIEW SUBJECT AREA PROCESSES					R														

FIGURE 2.4.2-3
STEP COMPONENTS

2.4.2 SELECT PROCESSES

2.4.2.1 Purpose

The purpose of this step is to apply the scoping criteria to the LIA (Logical Information Architecture) processes in order to select those processes which will be decomposed and analyzed in the next steps of the Global Analysis phase.

The reason for selecting those processes which are within scope and for excluding those which are out of scope is to be able to develop a set of LIA products (diagrams, reports, and documents) which contain only those components which are involved in the Subject Area.

2.4.2.2 Components/Terms

2.4.2.2.1 Process

See previous definition.

2.4.2.2.2 Action

See previous definition.

2.4.2.2.2.1 Create

See previous definition.

2.4.2.2.2.2 Retrieve

See previous definition.

2.4.2.2.2.3 Update

See previous definition.

2.4.2.2.2.4 Delete

See previous definition.

2.4.2.3 Input Products

2.4.2.3.1 CIA CRUD Association Matrix

See previous definition.

2.4.2.3.2 Objectives Report

See previous definition

2.4.2.3.3 Information Requirements Report

See previous definition.

2.4.2.4 General Procedures

2.4.2.4.1 Review CRUD Association Matrix

Identify the processes in the rows on the LIA CRUD Association Matrix.

Every process on the CRUD Association Matrix should have the actions of its subordinates "rolled-up." If any subordinate processes or processes have C, R, U, and/or D indicated for an entity, then the parent should also have the CRUD indicated for that entity.

2.4.2.4.2 Indicate Out-of-scope Processes

It is assumed that the entities which are not within the scope of the Subject Area have been deleted from the LIA.

It is also assumed that all processes which use entities are properly indicated with C, R, U, or D properties. If subordinate processes have CRUD properties then the parent should also have those properties.

Indicate those processes within the CRUD Association Matrix which do not use the entities which have been selected as being within the scope of the subject area; indicate those processes which do not contain any C, R, U, or D in their rows by inserting an "*" in the space just after the process sequence number, for example: AAA*ASSURE ADEQUACY OF PURCHASE REQUEST.

If one of the scoping criteria is to exclude those processes which do not perform specific "actions" (e.g., Create, Retrieve, Update, or Delete), then also indicate those processes.

2.4.2.4.3 Review Subject Area Processes

Produce reports with the selected subject area processes and their definitions. Review the definitions for completeness and accuracy while making sure that the processes pertain to the subject area.

2.4.2.5 Output Products

2.4.2.5.1 LIA Process CRUD Association Matrix

2.4.2.5.2 LIA Process Reports

2.4.2.6 Rules

2.4.2.6.1 Adherence to scoping criteria

n order to stay within scope, processes must follow the scoping criteria (selected objectives and information requirements)

2.4.2.6.2 Mutual exclusivity

All processes must be mutually exclusive at the same level of their respective hierarchy.

2.4.2.6.3 Exhaustiveness

All processes at one level of a hierarchy must completely exhaust the parent.

2.4.2.6.4 Naming conventions and definitions

All processes must follow the component definitions and naming conventions.

2.4.2.7 Examples

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

Figure 2.4.2.7-1 IEW LIA CRUD Association Matrix

Information Engineering Workbench Report
Object Summary Report
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Process AAA ASSURE ADEQUACY OF PR

PROPERTIES:

DEFINITION:

ASSURE ADEQUACY OF PURCHASE REQUEST (PR)

CONSISTS OF:

A. TRANSFORM RECOMMENDED BUY INTO A PURCHASE REQUEST
B. VALIDATE THE PR FOR ADMIN COMPLETENESS
C. RESOLVE INADEQUATE PR'S
   (A SUSPENDED PR WILL EITHER BE REINSTATED OR CANCELLED)
D. MAKE ADMINISTRATIVE ASSIGNMENT TO BUYER
E. BEGIN PROCUREMENT ADMIN LEAD TIME (PALT)
F. REINSTATE OR CANCEL SUSPENDED PRS

Figure 2.4.2.7-2 IEW Process Report (Process AAA)

07/02/90

DEFENSE LOGISTICS AGENCY
Catalogue Query
The following members satisfy this condition...
PROCESS AND CONTRACTOR PROFILE.

Member Name	Member Type
PR-APPLY-APPBL-EVALN-FACTR	PROCESS
PR-APPLY-EVALN-FACTR	PROCESS
PR-ASGN-RESP	PROCESS
PR-ASSUR-CONTR-CMPLC	PROCESS
PR-ASSUR-FINCL-CMPLC	PROCESS
PR-ASSUR-PRCH-RQST-ADQCY	PROCESS
PR-ASSUR-QLTY-SPLY-SVC	PROCESS
PR-ASSUR-TMLY-DLVY	PROCESS
PR-CLOSE-CONTR	PROCESS
PR-CLOSE-CONTR-FILE	PROCESS
PR-CNDCT-FINAL-OFFER-EVALN	PROCESS
PR-CNDCT-FLD-PRCNG	PROCESS
PR-CNDCT-FORML-AUDIT	PROCESS
PR-CNDCT-INTL-OFFER-EVALN	PROCESS
PR-CNDCT-POST-AWARD-MGT	PROCESS
PR-CNDCT-PRE-AWARD-SURVY	PROCESS
PR-CNDCT-PRICE-ANALS	PROCESS
PR-CNDCT-TECH-ANALS-COST-PROPL	PROCESS
PR-COMPR-BAFO-CNTRC-CBLTY	PROCESS
PR-COMPR-BAFO-CNTRC-PAST PRFMC	PROCESS
PR-COMPR-BAFO-CONTR-REQMT	PROCESS
PR-COMPR-CBLTY-SRC-SLCTN-OFFER	PROCESS
PR-COMPR-GENRL-ADMNV-COST	PROCESS
PR-COMPR-MANFC-OH-COST	PROCESS

Member Name	Member Type
PR-COMPR-PRFMC-SRC-SLCTN-OFFER	PROCESS
PR-COMPR-PRPSD-ACTL-LABOR-RATE	PROCESS
PR-COMPR-PRPSD-ACTL-MTL-COST	PROCESS
PR-DEVLP-ACQST-STRTG	PROCESS
PR-DTRM-COST-PRICE-ANALS-LEVEL	PROCESS
PR-DTRM-OFRR-RPNTY	PROCESS
PR-DTRM-RSPBL-OFRR	PROCESS
PR-EVAL-BAFO	PROCESS
PR-EVAL-CNTRC-HIST	PROCESS
PR-EVAL-COST-PRICE-PROPL	PROCESS
PR-EVAL-OFRR-CURR-CBLTY	PROCESS
PR-EXAMN-DIR-COST-ELMNT	PROCESS
PR-EXAMN-INDIR-COST-ELMNT	PROCESS
PR-EXAMN-NGOTD-COND	PROCESS
PR-EXEC-MOD	PROCESS
PR-INVSG-DISCL	PROCESS
PR-NOTFY-UNSFL-OFRR	PROCESS
PR-PERFM-FINAL-OFFER-EVALN	PROCESS
PR-PERFM-RVU	PROCESS
PR-PREP-ACQST-PLAN	PROCESS
PR-PREP-SOLCN	PROCESS
PR-RVU-CNTRC-PRE-AWARD-SURVY	PROCESS
PR-RVU-CONTR-PRFMC	PROCESS
PR-RVU-FINCL-RATING SVC	PROCESS
PR-RVU-PRE-AWARD-CURVY-RCMDN	PROCESS
PR-RVU-PRFMC-HIST	PROCESS

DEFENSE LOGISTICS AGENCY

07/02/90 Catalogue Query

Member Name	Member Type
PR-VERFY-PHYS-CMPLN	PROCESS

51 Member(s) Satisfying Catalogue Query

Figure 2.4.2.7-3 PCD LIA Process List (Two Levels of Processes)

Member Type Member Name	Attribute Name & Contents
PROCESS	
PR-APPLY-APPBL-EVALN-FACTR	ALIAS
	IEW ABAD APPLY APPLICBL EVAL FACTORS
	CATALOGUE
	CONTRACTOR PROFILE
	PROCESS
	DEFINITION
	DESCRIPTION
	ENTRY-CONTENT-APPROVER-ORG
	ENTRY-CONTENT-MAINTAINER-ORG
	FULL-NAME
	Apply Applicable Evaluation Factor
	SOURCE
	DECOMPOSITION-TEXT
	PERFORMANCE
	RATE-OF-GROWTH
	SUGGESTED-MECHANISM
	CONTAINS
	PR-EVAL-SRC-SLCTN-OFFER
	PR-EVAL-QUOTN
	PR-EVAL-BID

Figure 2.4.2.7-4 PCD Process Report (Function A)

	CONTRACT	LEGAL ENTITY	OFFER
A ACQUISITION (F)	CRU	CRU	R
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
B INDUSTRIAL PREP PLANNING (F)	R	RU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

February 13, 1990 11:01:37

Figure 2.4.2.7-5 IEW LIA Process CRUD Association Matrix

Information Engineering Workbench Report
Object Summary Report
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Process AAAA TRANSFORM REC BUY INTO PR

PROPERTIES:

DEFINITION:

TRANSFORM RECOMMENDED BUY INTO A PURCHASE REQUEST

CONSISTS OF:

A. ASSSIGN PR NUMBER
B. ESTABLISH EFFECTIVE DATE OF PR (PART OF PR NUMBER)
C. DEVELOP TECHNICAL PACKAGING REQUIREMENTS
D. CREATE A PR DOCUMENT (SF 36 CONTINUATION SHEET)
E. CREATE A PR RECORD (SAMMS - CONTRACTING SUBSYSTEM, ACTIVE PR FIL (APRF)
F. APPROVE COMMITMENT FUNDS

Figure 2.4.2.7-6 IEW LIA Process Report (for Process AAAA)

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

Member Type

Member Name	Attribute Name & Contents
PROCESS	
PR-ASSUR-PRCH-RQST-ADQCY	ALIAS
	IEW AAA ASSURE ADEQUACY OF PR
	CATALOGUE
	CONTRACTOR PROFILE
	LIFE CYCLE FUNCTION
	PROCESS
	DEFINITION
	Assure Adequacy of Purchase Request contains the following processes:
	1. TO TRANSFORM A RECOMMENDED BUY INTO A VEHICLE FOR SOLICITATION.
	2. TO VALIDATE THE PR FOR ADMIN COMPLETENESS.
	3. TO ADDRESS AND RESOLVE INADEQUATE PRS. A SUSPENDED PR WILL EITHER BE REINSTATED OR CANCELLED.
	4. TO MAKE ADMINISTRATIVE ASSIGNMENT TO BUYER BY ASSIGNMENT CRITERIA.
	5. TO BEGIN PROCUREMENT ADMIN LEAD TIME (PALT).
	6. TO REINSTATE OR CANCEL SUSPENDED PRS.
	DESCRIPTION
	ENTRY-CONTENT-APPROVER-ORG
	ENTRY-CONTENT-MAINTAINER-ORG
	FULL-NAME
	ASSURE ADEQUACY OF PR
	SOURCE
	DECOMPOSITION-TEXT
	PERFORMANCE
	RATE-OF-GROWTH
	SUGGESTED-MECHANISM
	CONTAINS

Figure 2.4.2.7-7 PCD Process Report (For Process AAA)

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT	
IR-CNTRC-CONTR-PRFMC	CATALOGUE
	CONTRACTOR PROFILE
	INFORMATION REQUIREMENT
	DEFINITION
	Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients.
	ENTRY-CONTENT-APPROVER-ORG
	FULL-NAME
	Contractor or Contract Performance
	SOURCE
	Team member knowledge
	CONTAINS
	EN-CONTR
	EN-ITEM
	EN-LEGAL-ENTY
	IR-0001
	IR-0002
	IR-0004
	IR-0010
	IR-0016
	IR-0017
	IR-0021
	IR-0022
	IR-0038
	IR-0040
	IR-0041
	IR-0045
	IR-0048

Figure 2.4.2.7-8 Information Requirements Report

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

Member Type Member Name	Attribute Name & Contents
OBJECTIVE	
OB-PROV-CNTRC-PRFMC-DATA	CATALOGUE CONTRACTOR PROFILE OBJECTIVE DEFINITION Provide contractor performance data in order to award contracts to the best performing contractors. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Provide Contractor Performance Data SOURCE Team member knowledge

Figure 2.4.2.7-9 Objectives List

2.4.2 APPENDIX A - DETAILED IEW PROCEDURES

2.4.2 SELECT PROCESSES

There are no IEW procedures for this section.

2.4.2 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.4.2 SELECT PROCESSES

Reference Appendix D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

2.4.2.1 PURPOSE

The purpose of these PC Dictionary procedures is to explain how to capture and report the information that is gathered while selecting the processes that will be further analyzed.

2.4.2.2 COMPONENTS/TERMS

2.4.2.3 INPUT PRODUCTS

2.4.2.4 GENERAL PROCEDURES

2.4.2.4.2 Indicate Out-of-scope Processes (Refer to CRUD matrix, namely processes identified as being out of scope with the '*')

2.4.2.4.2.1 Edit one out-of-scope process.
2.4.2.4.2.2 Edit Catalog.
2.4.2.4.2.3 Delete CONTRACTOR PROFILE catalog.
2.4.2.4.2.4 Save catalog.
2.4.2.4.2.5 Edit any other attributes as needed.
2.4.2.4.2.6 Save process.
2.4.2.4.2.7 Repeat for each out-of-scope process.

2.4.2.4.3 Review Subject Area Processes
(Get list of Subject Area Processes)

2.4.2.4.3.1 Select QUERY from MAIN MENU.
2.4.2.4.3.2 Select CATALOGUE from QUERY MENU.
2.4.2.4.3.3 Enter PROCESS catalog AND CONTRACTOR PROFILE catalog.
2.4.2.4.3.4 Run report.
(Get report of Subject Area Processes)
2.4.2.4.3.5 Use previous catalog list to select processes for the Member Definition report. (Refer to Appendix D PC DICTIONARY GENERAL PROCEDURES for more detail on the Member Definition report.)
2.4.2.4.3.6 After reviewing the definitions, edit processes as needed.

2.5 PREPARE SCOPE MEMORANDUM

Figure 2.5-1 Step Overview
Figure 2.5-2 Step Products
Figure 2.5-3 Step Components

2.5.1 PURPOSE

2.5.2 COMPONENTS

2.5.2.1 Objective
2.5.2.3 Information Requirement
2.5.2.3 Entity
2.5.2.4 Process

2.5.3 INPUT PRODUCTS

2.5.3.1 Subject Area Objective Report
2.5.3.2 Subject Area Information Requirements Report
2.5.3.3 Subject Area Entity Relationship Diagram
2.5.3.4 Subject Area Entity Report
2.5.3.5 Subject Area Function Decomposition Diagram
2.5.3.6 Subject Area Function Report

2.5.4 GENERAL PROCEDURES

2.5.4.1 Gather Suppporting Documentation
2.5.4.2 Prepare DLA-IOM

2.5.5 OUTPUT PRODUCTS

2.5.5.1 Subject Area Scope IOM

2.5.6 RULES

2.5.7 EXAMPLES

Figure 2.5.7-1 Subject Area Objective Report
Figure 2.5.7-2 Subject Area Information Requirements Report
Figure 2.5.7-3 Subject Area Entity Relationship Diagram
Figure 2.5.7-4 Subject Area Entity Report
Figure 2.5.7-5 Subject Area Function Decomposition Diagram
Figure 2.5.7-6 Subject Area Function Report
Figure 2.5.7-7 Subject Area Scope IOM

2.5 Appendix A - Detailed IEW Procedures
2.5 Appendix B - Detailed PC Dictionary Procedures

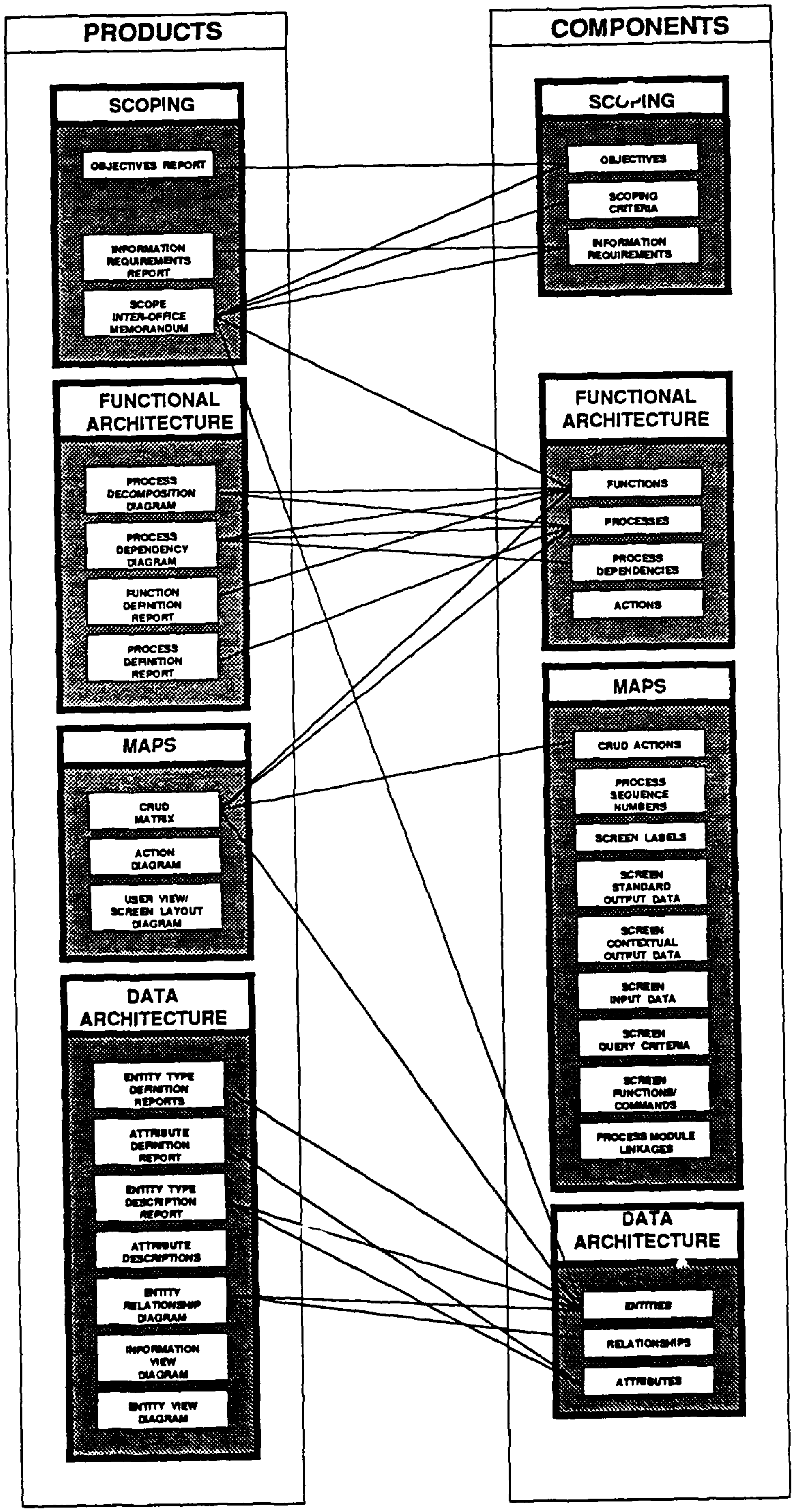


FIGURE 2.S-1
STEP OVERVIEW

PRODUCTS / 2.5 PREPARE SCOPE MEMORANDUM STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. GATHER SUPPORTING DOCUMENTATION	R	R			R	R	R	R	R			R	R	R	R	R		
2. PREPARE DLA-IOM			C															

FIGURE 2.5-2
STEP PRODUCTS

COMPONENTS / 2.5 PREPARE SCOPE MEMORANDUM STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. GATHER SUPPORTING DOCUMENTATION	R	R	R	R	R	R		R	R								R	R	
2. PREPARE DLA-IOM																			

FIGURE 2.5-J
STEP COMPONENTS

2.5 PREPARE SCOPE MEMORANDUM

2.5.1 PURPOSE

To document the scope of the Subject Area for:

- management review and approval
- setting the proper expectation

2.5.2 COMPONENTS

2.5.2.1 Objective

2.5.2.3 Information Requirement

2.5.2.3 Entity

2.5.2.4 Process

2.5.3 INPUT PRODUCTS

2.5.3.1 Subject Area Objective Report (Figure 2.5.7-1)

2.5.3.2 Subject Area Information Requirements Report (Figure 2.5.7-2)

2.5.3.3 Subject Area Entity Relationship Diagram (Figure 2.5.7-3)

2.5.3.4 Subject Area Entity Reports (Figure 2.5.7-4)

2.5.3.5 Subject Area Function Decomposition Diagram (Figure 2.5.7-5)

2.5.3.6 Subject Area Function Report (Figure 2.5.7-6)

2.5.4 GENERAL PROCEDURES

2.5.4.1 Gather Suppporting Documentation

Gather copies of the products listed as inputs. These will be attachments to a DLA IOM prepared in the next step. These attachments contain the Project Team's recommendation on scope.

The Project Team may choose to also gather products that represent the Conceptual Architecture so that what is in scope and what is not in scope will be apparent.

2.5.4.2 Prepare DLA-IOM

An IOM is prepared that explains the purpose of the memo and the attachments. The memo should be addressed to the Program Manager from the Team's leader. The Program Manager will coordinate the IOM for comments, review meetings and ultimately approval.

The memo should identify the scheduled date for completing Global Analysis. Any changes to scope beyond this date will generally result in significant rework which translates into cost overruns and slipped schedules.

After completing the memo, the Team will be expected to proceed directly into Global Analysis without waiting for approval. Changes received during Global Analysis will require the Team to retrace Global Analysis steps.

2.5.5 OUTPUT PRODUCTS

2.5.5.1 Subject Area Scope IOM (Figure 2.5.7-7)

2.5.6 RULES

2.5.7 EXAMPLES

DEFENSE LOGISTICS AGENCY

07/02/90 Member Definition Report Page 1

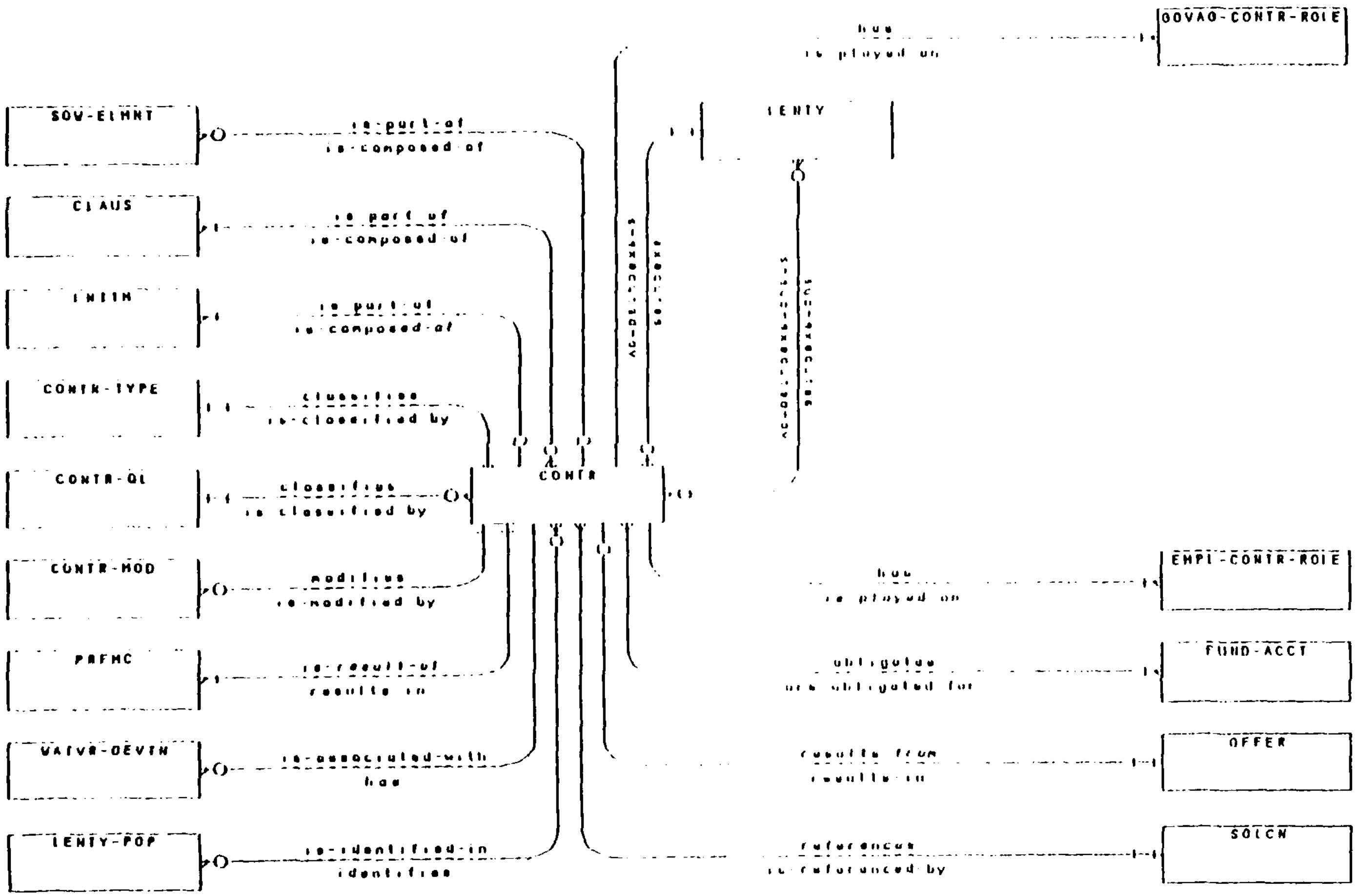
Member Type Member Name	Attribute Name & Contents
OBJECTIVE OB-PROV-CNTRC-PRFMC-DATA	CATALOGUE CONTRACTOR PROFILE OBJECTIVE DEFINITION Provide contractor performance data in order to award contracts to the best performing contractors. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Provide Contractor Performance Data SOURCE Team member knowledge

Figure 2.5.7-1 Subject Area Objective Report

Member Type Member Name	Attribute Name & Contents
INFORMATION-REQUIREMENT IR-CNTRC-CHARC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which identifies and describes a given contractor's resources and their locations. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor Characteristics SOURCE Team member knowledge CONTAINS EN-ITEM EN-LEGAL-ENTY EN-OFFER IR-0021 IR-0022
INFORMATION-REQUIREMENT IR-CNTRC-CONTR-PRFMC	CATALOGUE CONTRACTOR PROFILE INFORMATION REQUIREMENT DEFINITION Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients. ENTRY-CONTENT-APPROVER-ORG FULL-NAME Contractor or Contract Performance SOURCE Team member knowledge CONTAINS EN-CONTR EN-ITEM EN-LEGAL-ENTY IR-0001 IR-0002

Member Type Member Name	Attribute Name & Contents	
	IR-0004	
	IR-0010	
	IR-0016	
	IR-0017	
	IR-0021	
	IR-0022	
	IR-0038	
	IR-0040	
	IR-0041	
	IR-0045	
	IR-0048	

Figure 2.5.7-2 Subject Area Information Requirements Report



SA-CONTRACT-ROOT

June 13 1990 15:46:40

Figure 2.5.7-3 Subject Area Entity Relationship Diagram

Member Type / Member Name	Attribute Name & Contents
ENTITY	
EN-CONTR	ALIAS
	CATALOGUE
	CONCEPTUAL
	CONTRACTOR PROFILE
	ENTITY
	SUBSTANTIVE
	DEFINITION
	A contract is a mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.
	DESCRIPTION
	In addition to bilateral instruments, contracts include (but are not limited to) job orders or task letters issued under basic order agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance.
	ENTRY-CONTENT-APPROVER-ORG
	ENTRY-CONTENT-MAINTAINER-ORG
	FULL-NAME
	Contract
	SOURCE
	Team member knowledge
	FAR subpart 2.1
	IDENTIFIER IS
	CT-CONTR-NBR
	MULTI-ASSOCIATION TO
	MULTI-ATTRIBUTES ARE
	ONE-ASSOCIATION TO
	ONE-ATTRIBUTES ARE
	CT-CONTR-CLOSD-DATE
	CT-CONTR-DOLR-AMT
	CT-CONTR-EFCTV-AWARD-DATE
	CT-CONTR-PAYMT-TERM-TEXT
	CT-CONTR-DPAS-RATE-CD
	CT-CONTR-STAT-INDCT
	CT-CONTR-OBGD-DOLR-AMT
	SEE
	SUB-ENTITIES ARE
	EN-CONTR-MOD
	EN-CLAUS
	EN-SOW-ELMNT

Member Type Member Name	Attribute Name & Contents
	EN-LNITM
ENTITY EN-LENTY	ALIAS

CATALOGUE
CONCEPTUAL
CONTRACTOR PROFILE
ENTITY
SUBSTANTIVE
DEFINITION
Legal entity is a person or group of persons, a corporation or other existence recognized by law as having rights and duties.
DESCRIPTION
This includes current contractor, past contractor, potential contractor, or offeror.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
LEGAL-ENTITY
SOURCE
Dictionary
Team member knowledge
IDENTIFIER IS
CT-LENTY-NBR
MULTI-ASSOCIATION TO
MULTI-ATTRIBUTES ARE
CT-LENTY-FAX-NBR

CT-LENTY-SIC-CD

CT-LENTY-TLPHN-NBR
ONE-ASSOCIATION TO
ONE-ATTRIBUTES ARE
CT-LENTY-BKRCY-CD

CT-LENTY-BUSNS-SIZE

CT-LENTY-DB-RATE-DATE

CT-LENTY-NAME

CT-LENTY-OWNSP-CD

CT-LENTY-PARNT-IDNTF

CT-LENTY-STAT-CD

CT-LENTY-TAX-ID-NBR

Member Type
Member Name Attribute Name & Contents

CT-LENTY-BUSNS-ADRS-TEXT

CT-LENTY-DB-RATE-CD

CT-LENTY-DISCL-STMT-STAT-INDCT

CT-LENTY-ELGBY-STAT-INDCT

CT-LENTY-MALNG-ADRS-TEXT

CT-LENTY-NOVTN-STAT-CD

CT-LENTY-ASSN-CAGE-CD

CT-LENTY-CAGE-CD

CT-LENTY-WOMAN-OWNSP-INDCT

CT-LENTY-DISAD-INDCT

CT-LENTY-MNRTY-INDCT

SEE

EN-SRC

EN-OFRR

EN-CNTRC

EN-SUB-CNTRC

EN-PRE-AWD-SURVY-RQST

EN-CAPBL

EN-CNTRC-HIST

EN-CNTRC-SYS

EN-CNTRC-CORTV-ACTN

EN-CONTR-QLTY-ASRNC

EN-FINDG

EN-FWD-PRICE-RATE

EN-PRCDR-EVAL

EN-PRCDR-RVU

Member Type
Member Name Attribute Name & Contents

EN-QLTY-DATA-EVAL

EN-SRVLC

EN-CONTR
FOR "ASSOCIATION"

EN-ITEM
FOR "ASSOCIATION"

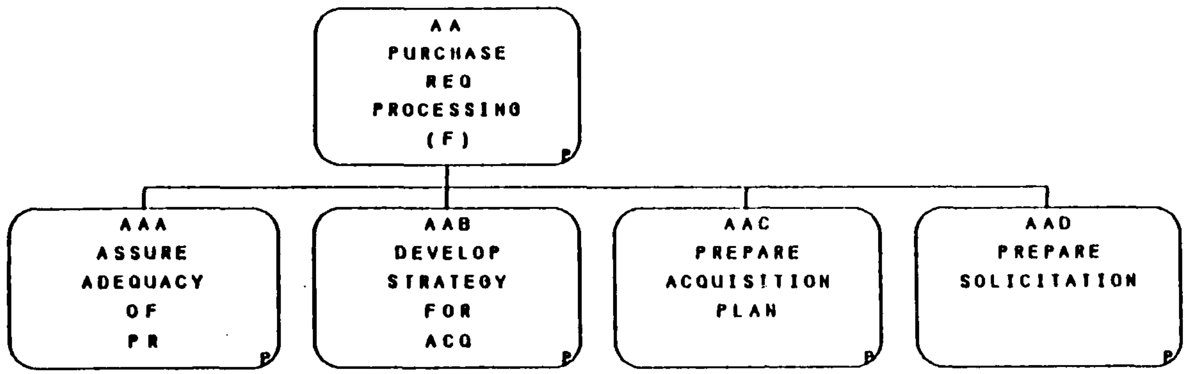
EN-OFFER
FOR "ASSOCIATION"

EN-SOLCN
FOR "ASSOCIATION"
SUB-ENTITIES ARE
EN-LENTY-CBLTY

EN-LENTY-PRFMC-PLACE

EN-LENTY-SYS-RVU

Figure 2.5.7-4 Subject Area Entity Report



AA PURCHASE REQ PROCESSING (F)

Figure 2.5.7-5 Subject Area Function Decomposition Diagram

Member Type Member Name	Attribute Name & Contents
FUNCTION FN-ACQST	ALIAS

```
FUNCTION
FN-ACQST                       ALIAS
                                  IEW A ACQUISITION (F)
                               CATALOGUE
                                  FUNCTION
                                  LIFE CYCLE FUNCTION
                               DEFINITION
                                  THIS FUNCTION EXISTS FOR THE FOLLOWING PURPOSES:
                                  1.  TO PROCESS PURCHASE REQUESTS.
                                  2.  TO EVALUATE OFFERS.
                                  3.  TO AWARD CONTRACTS.
                                  4.  TO ADMINISTER CONTRACTS.
                                  5.  TO DEVELOP FORWARD PRICE RATE.
                                  6.  TO REVIEW CONTRACTOR SYSTEM.
                               DESCRIPTION
                               ENTRY-CONTENT-APPROVER-ORG
                               ENTRY-CONTENT-MAINTAINER-ORG
                               FULL-NAME
                                  ACQUISITION
                               SOURCE
                               DECOMPOSITION-TEXT
                               CONTAINS
                               SEE
                                  FN-4-0-CONTR
                                  FOR "BAA FUNCTION"

                                  FN-5-0-CONTR-ADMIN
                                  FOR "BAA FUNCTION"
```

Figure 2.5.7-6 Subject Area Function Report

CONTRACTOR PROFILE PILOT TEAM

SUBJECT: Memorandum of Scoping for Logical Information Architecture (Contractor Profile Pilot)

TO: DSMO-PK
ATTN: LTC Mike Hodges, Program Manager

1. Reference: Logical Information Architecture (LIA) Development Procedures Draft, February 1990, Section 1.4 (enclosure 1, PREPARE SCOPE MEMORANDUM).

2. Purpose: The purposes of the Scoping Phase of the LIA Development Procedures include the following:

a. To develop the scoping criteria for selecting components out of the Conceptual Information Architecture which will be analyzed and designed during the Logical Information Architecture Development Phase. The scoping criteria consist of Information Requirements (IR's) and Objectives, and will be used throughout the Logical Design.

b. To select the conceptual entities and functions which are within the scope of the Contractor Profile Subject Area based upon the scoping criteria (i.e., IR's and Objectives).

3. Explanation of attachments:

The following steps were performed to produce the attachments (products) required to complete the Scoping Phase:

a. The Pilot team reviewed the Conceptual Information Architecture (CIA) (enclosure 2, CIA ASSOCIATION MATRIX). This matrix shows the conceptual entities, functions and processes which constitute the entire CIA.

b. Identified, collected and reviewed source documents (enclosure 3, LIST OF SCOPING SOURCE DOCUMENTS).

c. Defined detailed Information Requirements (IR's) (enclosure 4, DETAILED INFORMATION REQUIREMENTS).

d. Defined high-level Information Requirements (enclosure 5, HIGH-LEVEL INFORMATION REQUIREMENTS).

e. Defined the Objective of the Contractor Profile Subject Area (enclosure 6, OBJECTIVE OF THE CONTRACTOR PROFILE SUBJECT AREA).

f. Applied the scoping criteria to the Conceptual Data Architecture and selected the conceptual entities which are within the scope of the Logical Data Architecture (enclosure 7, CONCEPTUAL ENTITY RELATIONSHIP DIAGRAM, enclosure 8, SELECTED ENTITY RELATIONSHIP DIAGRAM, enclosure 9, SELECTED ENTITY REPORT).

g. Applied the scoping criteria to the Conceptual Functional Architecture and selected the functions which are within the scope of the Logical Functional Architecture. (enclosure 10, CONCEPTUAL FUNCTION TO ENTITY ASSOCIATION MATRIX, enclosure 11, SELECTED FUNCTION TO ENTITY ASSOCIATION MATRIX, enclosure 12, SELECTED FUNCTION REPORT).

4. Recommendations:

a. The Pilot Team recommends that the objective of the Contractor Profile Pilot Logical Information Architecture be as follows:

"Provide contractor performance data in order to award contracts to the best performing contractors."

b. The Pilot team recommends that the high level information requirements to be fulfilled by the Contractor Profile Pilot are as follows:

(1) Contract or Contractor Performance

"Information which indicates a given contractor's effectiveness and efficiency to satisfy contractual obligations. This information indicates performance on items, performance on an individual contract, aggregate performance on multiple contracts, or performance with other Government customers and/or non-Government clients."

(2) Contractor Capability

"Information which identifies and describes a contractor's ability and capacity to provide a service or a product."

(3) Contractor Characteristics

"Information which identifies and describes a given contractor's resources and its location(s)."

(4) Information Requirements not to be included (definitions listed in enclosure 13).

(a) Bids and Proposals
(b) Contract Requirements
(c) Item
(d) Government Performance

c. The Pilot team has applied the scoping criteria according to the scoping procedures, selected the entities, and recommends that the following entities (as defined in enclosure 9, SELECTED ENTITY REPORT) be included within the scope of the Logical Data Architecture:

(1) Legal Entity
(2) Contract
(3) Offer
(4) Item

The following entities are not within the scope of the Contractor Profile Pilot Logical Information Architecture because they do not contain attributes relative to the selected contractor performance, capability and characteristics Information Requirements and Objective. Entities not included are as follows (definitions listed in enclosure 14):

(5) Employee
(6) Solicitation
(7) Organization
(8) Funds
(9) Purchase Request
(10) Customer

d. The Pilot team has applied the scoping criteria, selected functions according to the scoping procedures and recommends that the following functions (described in enclosure 12, SELECTED FUNCTION REPORT) be included within the scope of the Logical Functional Architecture:

(1) Purchase Request Processing
(2) Offer Evaluation
(3) Contract Award
(4) Contract Administration

COTRACTOR PROFILE PILOT TEAM
SUBJECT: Memorandum of Scoping for Logical Information Architecture

(5) Forward Price Rate Development
(6) Contractor System Review
(7) Mobilization Requirement Determination
(8) Industrial Preparedness Planning (IPP) Candidate Item Evaluation
(9) Production Planning Schedule Development
(10) IPP Package Development

5. The scheduled date for the completion of the next phase of the Logical Information Architecture Development (i.e., Global Analysis) is 30 March 1990.

Francis C. Bruno
Team Leader
DLA-AP

Team Members

DLA-C (J. Faust)
DLA-P (J. Plott)
DLA-Q (D. Fuller)
DLA-Q (P. Wells)

Figure 2.5.7-7 Subject Area Scope IOM

2.5 APPENDIX A - DETAILED IEW PROCEDURES

2.5 PREPARE SCOPE MEMORANDUM

There are no IEW procedures for this section.

2.5 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

2.5 PREPARE SCOPE MEMORANDUM

There are no PC Dictionary procedures for this section.

3 UNIT ANALYSIS

In this level the lowest level process, which is within scope (i.e., the Sequential Process), is further defined and related to the Data Architecture. Each Sequential Process is defined in Action Diagrams which contain the conditional logic and algorithms for performance of the process. The Action Diagrams are mapped to the Data Architecture via Information Views. These data views define the entities and attributes which are used (i.e., entered, processed, and output by each Sequential Process). Additionally, the detailed attribute descriptions are developed for entry into the data dictionary.

3.1 DEVELOP INFORMATION VIEWS

Figure 3.1-1 Step Overview
Figure 3.1-2 Step Products
Figure 3.1-3 Step Components

3.1.1 PURPOSE

3.1.2 COMPONENTS/TERMS

3.1.2.1 Information Views
3.1.2.2 Entity View
3.1.2.3 Entity Type Description
3.1.2.4 Leaf Process
3.1.2.5 Subject Area ERD

3.1.3 INPUT PRODUCTS

3.1.3.1 List of Leaf Processes
3.1.3.2 Definitions of Leaf Processes
3.1.3.3 List of Entity Types and their Attributes
3.1.3.4 LIA Entity Relationship Diagram (ERD)
3.1.3.5 Definitions of Entity Types
3.1.3.6 CRUD Association Matrix

3.1.4 GENERAL PROCEDURES

3.1.4.1 Identify Entities in the Entity View
3.1.4.2 Identify the Attributes in the Entity Description
3.1.4.3 Identify Entity Relationships for the Entity View

3.1.5 OUTPUT PRODUCTS

3.1.5.1 An Entity View for each Leaf Process
3.1.5.2 An Entity Type Description for each Entity Type in an Entity View

3.1.6 RULES

3.1.6.1 Information Views
3.1.6.2 Entity Descriptions
3.1.6.3 Attributes

3.1.7 EXAMPLES

Figure 3.1.7-1 List of Leaf Processes
Figure 3.1.7-2 Definitions of Leaf Processes
Figure 3.1.7-3 List of Entity Types and their Attributes
Figure 3.1.7-4 LIA Entity Relationship Diagram (ERD)
Figure 3.1.7-5 Definitions of Entity Types
Figure 3.1.7-6 CRUD Association Matrix

3.1 Appendix A - Detailed IEW Procedures
3.1 Appendix B - Detailed PC Dictionary Procedures

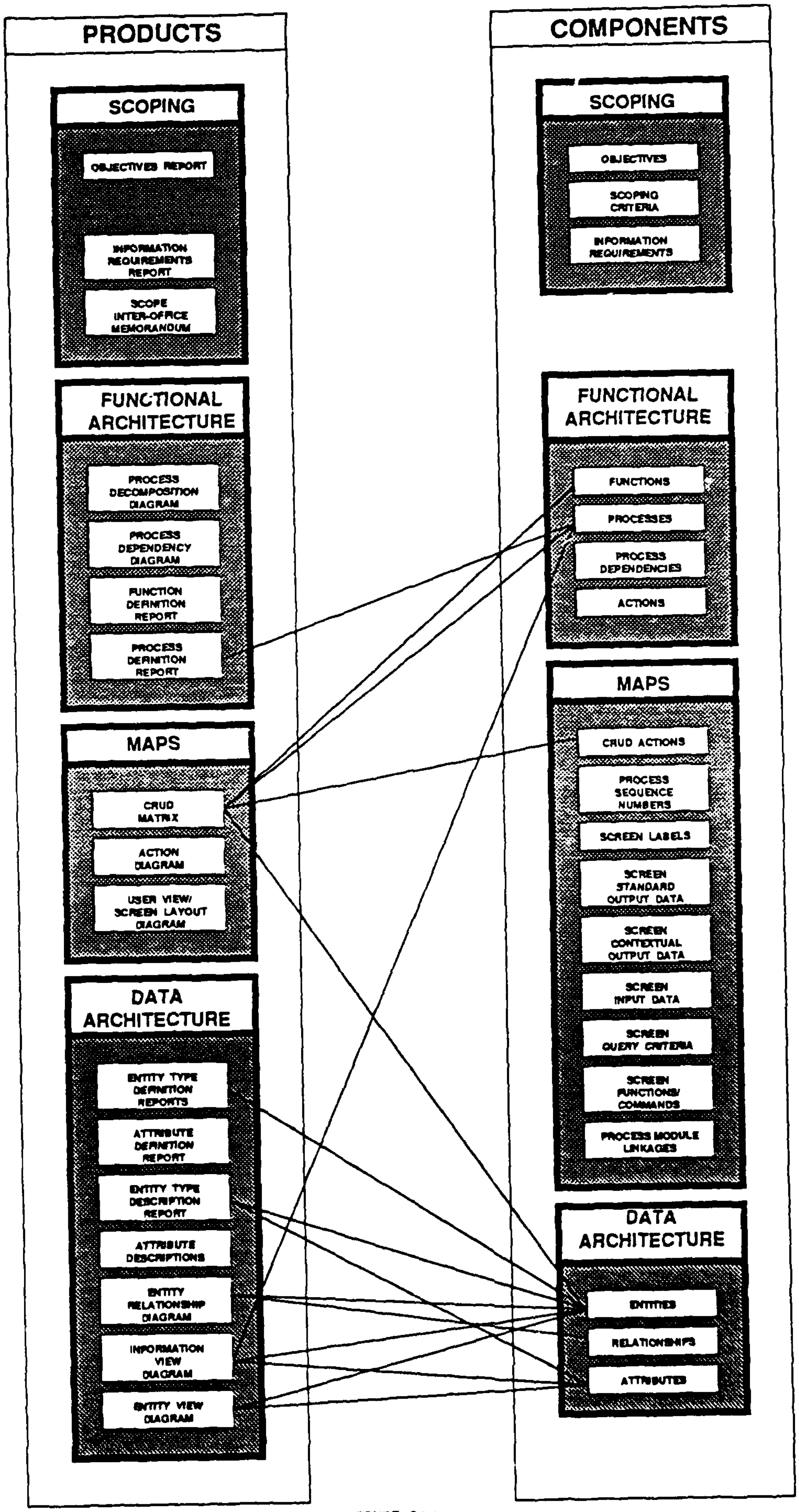


FIGURE 3.1-1
STEP OVERVIEW

PRODUCTS / 3.1 DEVELOP INFORMATION VIEWS STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. IDENTIFY ENTITIES IN THE ENTITY VIEW								R	R			R						
2. IDENTIFY THE ATTRIBUTES IN THE ENTITY DESCRIPTION														U	CR		C	RU
3. IDENTIFY ENTITY RELATIONSHIPS FOR THE ENTITY VIEW														R		CU		R

FIGURE 3.1-2
STEP PRODUCTS

COMPONENTS / 3.1 DEVELOP INFORMATION VIEWS STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. IDENTIFY ENTITIES IN THE ENTITY VIEW					R			R									R		
2. IDENTIFY THE ATTRIBUTES IN THE ENTITY DESCRIPTION																			CR
3. IDENTIFY ENTITY RELATIONSHIPS FOR THE ENTITY VIEW																	RU	RU	

FIGURE 3.1-3
STEP COMPONENTS

3.1 DEVELOP INFORMATION VIEWS

3.1.1 PURPOSE

Information Views map the Data and Functional Architectures at the lowest level of these Architectures. Information Views validate the Data Architecture by assuring that the data required by a process exists in the data model and by assuring the data affected by a process exists in the model. Information Views validate the Functional Architecture by assuring that the processes exist for producing the data required.

3.1.2 COMPONENTS/TERMS

3.1.2.1 Information Views

An Information View is made up of an Entity View and one or more Entity Type Descriptions. The Entity View identifies the Entity Types used by a Leaf Process (i.e., the Entity Types upon which the process takes action (i.e., Create, Retrieve, Update, or Delete)). The Entity Type Description identifies the Attributes of interest for an individual Entity Type in an Entity View. There must be an Entity Type Description for each Entity Type in an Information View. An Information View is made up of two components: Entity View and Entity Type Descriptions.

3.1.2.2 Entity View

The Entity View identifies the Entity Types used by a Leaf Process (i.e., the Entity Types upon which the process takes action (i.e., Create, Retrieve, Update, or Delete)). The Entity View also identifies the Entity Relationships needed for the process. The view is represented in the form of an Entity Relationship Diagram (ERD). In effect, the Entity View is what the Subject Area ERD looks like to a process.

3.1.2.3 Entity Type Description

The Entity Type Description identifies the Attributes of interest for an individual Entity Type in an Entity View. There must be an Entity Type Description for each Entity Type in an Information View.

3.1.2.4 Leaf Process

3.1.2.5 Subject Area ERD

3.1.3 INPUT PRODUCTS

3.1.3.1 List of Leaf Processes (Figure 3.1.7-1)

3.1.3.2 Definitions of Leaf Processes (Figure 3.1.7-2)

3.1.3.3 List of Entity Types and their Attributes (Figure 3.1.7-3)

3.1.3.4 LIA Entity Relationship Diagram (ERD) (Figure 3.1.7-4)

3.1.3.5 Definitions of Entity Types (Figure 3.1.7-5)

3.1.3.6 CRUD Association Matrix (Figure 3.1.7-6)

3.1.4 GENERAL PROCEDURES

3.1.4.1 Identify Entities in the Entity View

For each Leaf Process, identify the Entity Types that will be in the process's Entity View. The CRUD Analysis Report is used to identify the Entity Types that are in the Entity View. Select the Entity Types that have Actions (Create, Retrieve, Update, and Archive).

3.1.4.2 Identify the Attributes in the Entity Description

For each Entity Type in an Entity View identify the Attributes that are used by the Leaf Process. Review the list of Attributes for the Entity and select those that are needed for each action on the Entity (e.g., if there is a Retrieve, identify the attributes that are Retrieved.) Next, write down any attributes that are missing by asking the question, does all the data required for the action exist? Examine the definition of a Process when identifying the attributes to assure an understanding of the Process. Review the definition of an Entity before marking down missing attributes. Look at related Entities for missing attributes.

3.1.4.3 Identify Entity Relationships for the Entity View

Compare the Entity Type Descriptions of each Entity to the Entity Type Descriptions of all other Entity Type Description in the Entity View. Use this comparison along with the Subject Area ERD to identify the Relationships required in the Entity View.

3.1.5 OUTPUT PRODUCTS

3.1.5.1 An Entity View for each Leaf Process

3.1.5.2 An Entity Type Description for each Entity Type in an Entity View

3.1.6 RULES

3.1.6.1 Information Views

Each Leaf Process must have an Information View. That is each process must have a requirement for Subject Area data.

3.1.6.2 Entity Descriptions

Each Entity Type in an Entity View must have an Entity Description with one exception. When an Entity Type is archived by a process, the Output View shall contain the Entity Type without a corresponding Entity Description.

3.1.6.3 Attributes

Each Entity Type Description must contain at least one Attribute.

3.1.7 EXAMPLES

ABAC+DET LVL OF COST PRICE ANLS	Sequential Process
ABADB+COMPARE CAP TO OFFER	Sequential Process
ABAFA+REV HIST PAS FOR OFFEROR	Sequential Process
ABAFB+REV PREV CONTRACT PERF	Sequential Process
ABAFC+REV DUN&BRAD FIN REPORT	Sequential Process
ABBC+PERFORM PAS REVIEWS	Sequential Process
ABBCA+CONDUCT TECHNICAL PAS	Sequential Process
ABBCB+CONDUCT PRODUCTION PAS	Sequential Process
ABBCC+CONDUCT QUALITY PAS	Sequential Process
ABBCD+CONDUCT FINANCIAL PAS	Sequential Process
ABBCE+CONDUCT ACCOUNT SYS PAS	Sequential Process
ABBCF+CONDUCT GOVT PROP CTL PAS	Sequential Process
ABBCG+CONDUCT TRANSPORTATION PAS	Sequential Process
ABBCH+CONDUCT PACKAGING PAS	Sequential Process
ABBCJ+COND PLNT SFTY PAS/EXPLSVS	Sequential Process
ABCC+CRT PRE NEG BRF MEMO	Sequential Process
ABDCDA+COMPARE BAFO TO REQMNTS	Sequential Process
ABDCDB+COMPARE BAFO TO KTR CAP	Sequential Process
ABDD+DET IF OFFEROR RESPONSIBLE	Sequential Process
ADAAAA+REVIEW CONT PERF HIST	Sequential Process
ADBBC+PERFORM PRODUCTION SRVLNCE	Sequential Process
ADBCA+INSTRUCT QA REP	Sequential Process
ADBCBC+PROOF ADQUCY OF KTR PROCS	Sequential Process
ADBCBDA+CONDUCT PRODUCT AUDITS	Sequential Process
ADBCBDB+COLLECT DATA AND ANALYZE	Sequential Process
ADBCBE+PROCESS CORRECTIVE ACTION	Sequential Process
ADBCC+EVAL FRST ARTCL TST REP	Sequential Process
ADBCDBB+EVAL KTR CHANGE REQUEST	Sequential Process
ADBCE+TEST SPARE/REPAIR PARTS	Sequential Process
ADBCFB+INVEST DEFICS / CMPLNTS	Sequential Process
ADBDC+ASSURE CMPLNC PROG PMNTS	Sequential Process
ADBEA+ASSURE GOVT PROP CMPLIANCE	Sequential Process
ADBEB+ASSURE TRANS/PKG CMPLIANCE	Sequential Process
ADBED+ASSURE SAFETY COMPLIANCE	Sequential Process

Figure 3.1.7-1 List of Leaf Processes

Name

ABADB+COMPARE CAP TO OFFER

Transaction Center

(Y, N)

Central Transform

(Y, N)

Definition

COMPARE OFFERORS' CAPABILITY TO PERFORM TO THE SOURCE SELECTION OFFERS

THIS IS A SEQUENTIAL PROCESS

Comments

Last Saved

1990/05/30 14:05 NEWUSER

Last Update

1990/05/23 14:01 NEWUSER

Created

1990/04/29 10:51:02 NEWUSER

ABADB+COMPARE CAP TO OFFER

July 3, 1990 15:03.24

Figure 3.1.7-2 Definition of Leaf Process

Information Engineering Workbench Report
Object Summary Report
July 3, 1990 15:08:42 NEWUSER CPVER01

Entity Type CLAUS

PROPERTIES:

PURPOSE: FUNDAMENTAL

LAST UPDATE: 1990/06/20 07:22 NEWUSER

CREATED: 1990/04/23 08:05:10 NEWUSER

COMMENTS:
Fullname - Clause

ASSOCIATIONS:

is-part-of
Entity Type CONTR
identifies
Entity Type FUND-ACCT
is-contained-in
Entity Type SOLCN
IS INVOLVED IN
Subject Area SA-CONTRACT-ROOT
Subject Area SA-CLAUSE-ROOT
Subject Area SA-CLAUSE-TYPE
Sequential Process ABADB+COMPARE CAP TO OFFER
Sequential Process ABBC+PERFORM PAS REVIEWS
Sequential Process ABDD+DET IF OFFEROR RESPONSIBLE
Sequential Process ABCC+CRT PRE NEG BRF MEMO
Sequential Process ABBCA+CONDUCT TECHNICAL PAS
Sequential Process ABBCC+CONDUCT QUALITY PAS
Sequential Process ABBCH+CONDUCT PACKAGING PAS
Sequential Process ABBCG+CONDUCT TRANSPORTATION PAS
Sequential Process ABBCB+CONDUCT PRODUCTION PAS
Sequential Process ADBBC+PERFORM PRODUCTION SRVLNCE
Sequential Process ABDCDA+COMPARE BAFO TO REQMNTS
Sequential Process ADBDC+ASSURE CMPLNC PROG PMNTS
Sequential Process ADBCC+EVAL FRST ARTCL TST REP
Sequential Process ABDCDB+COMPARE BAFO TO KTR CAP
Sequential Process ADBCA+INSTRUCT QA REP
Sequential Process ADBCBDA+CONDUCT PRODUCT AUDITS
Sequential Process ADBCBDB+COLLECT DATA AND ANALYZE
Sequential Process ADBCBE+PROCESS CORRECTIVE ACTION
Sequential Process ADBCE+TEST SPARE/REPAIR PARTS
Sequential Process ADBCDBB+EVAL KTR CHANGE REQUEST
Sequential Process ABBCF+CONDUCT GOVT PROP CTL PAS
Sequential Process ADBEA+ASSURE GOVT PROP CMPLIANCE
Sequential Process ABBCJ+COND PLNT SFTY PAS/EXPLSVS

```
      Sequential Process ADBED+ASSURE SAFETY COMPLIANCE
      Subject Area SA-FUND-ACCOUNT-ROOT
      Subject Area SA-SOLICITATION
      Subject Area IN-SCOPE
   is-classified-by
      Entity Type CLAUS-TYPE
   IS DESCRIBED BY
      Attribute Type NBR
      Attribute Type FAR-REF-NBR
      Attribute Type DSCRN-TEXT
   IS IMPLEMENTED BY
      Local Data Structure CLAUS
      Local Data Structure CLAUS.FAR-REF-NBR
      Local Data Structure CLAUS.is-part-of.CONTR
      Local Data Structure CLAUS.identifies.FUND-ACCT
      Local Data Structure CLAUS.is-contained-in.SOLCN
```

Entity Type ITEM

PROPERTIES:

PURPOSE: FUNDAMENTAL

LAST UPDATE: 1990/06/20 07:22 NEWUSER

CREATED: 1989/06/16 10:27:09 NEWUSER

DEFINITION:
AN ITEM IS A SUPPLY OR SERVICE THAT HAS BEEN OR WILL BE ACQUIRED TO FULFILL A GOVERNMENT REQUIREMENT.

COMMENTS:
AUDIT TRAIL: ITEM INCLUDES ACCEPTANCE, ACQUISITION PLAN, CORRECTIVE ACTION, COST/PRICE PROPOSAL, FEDERAL SUPPLY CLASS, INDUSTRIAL PREPAREDNESS PLANNING, INVENTORY, ITEM HISTORY, ITEM REQUIREMENT, LOCATION, OPERATING SCENARIO, PRODUCT, PRODUCT VERIFICATION INSPECTI PRODUCTION PLANNING SCHEDULE, PROPERTY, ROUTE, WEAPONS SYSTEM,AND MATERIEL.

ASSOCIATIONS:

```
   IS REQUESTED BY
      Entity Type SOLCN
   is-procured-by
      Entity Type GOVAG
   is-supplied-by
      Entity Type GOVAG
   is-maintained-by
```

```
      Entity Type GOVAG
   is-examined-by
      Entity Type LAB-TEST
   IS INVOLVED IN
      Subject Area SA-ITEM-FEDERAL-SUPPLY-CLASS
      Subject Area SA-ITEM-ROOT
      Subject Area SA-LINE-ITEM-ROOT
      Subject Area SA-LEGAL-ENTITY-PLACE-OF-PERFMC
      Sequential Process ABBC÷PERFORM PAS REVIEWS
      Subject Area SA-LABORATORY-TEST-ROOT
      Sequential Process ABAC÷DET LVL OF COST PRICE ANLS
      Sequential Process ABADB÷COMPARE CAP TO OFFER
      Sequential Process ABDD÷DET IF OFFEROR RESPONSIBLE
      Sequential Process ABCC÷CRT PRE NEG BRF MEMO
      Sequential Process ABBCA÷CONDUCT TECHNICAL PAS
      Sequential Process ABBCB÷CONDUCT PRODUCTION PAS
      Sequential Process ABBCC÷CONDUCT QUALITY PAS
      Sequential Process ABBCG÷CONDUCT TRANSPORTATION PAS
      Sequential Process ABBCH÷CONDUCT PACKAGING PAS
      Sequential Process ABBCJ÷COND PLNT SFTY PAS/EXPLSVS
      Sequential Process ADBBC÷PERFORM PRODUCTION SRVLNCE
      Sequential Process ADBCC÷EVAL FRST ARTCL TST REP
      Sequential Process ABDCDA÷COMPARE BAFO TO REQMNTS
      Sequential Process ABDCDB÷COMPARE BAFO TO KTR CAP
      Sequential Process ADBCA÷INSTRUCT QA REP
      Sequential Process ADBCBC÷PROOF ADQUCY OF KTR PROCS
      Sequential Process ADBCBDA+CONDUCT PRODUCT AUDITS
      Sequential Process ADBCBDB+COLLECT DATA AND ANALYZE
      Sequential Process ADBCBE÷PROCESS CORRECTIVE ACTION
      Sequential Process ADBCE+TEST SPARE/REPAIR PARTS
      Sequential Process ADBCDBB+EVAL KTR CHANGE REQUEST
      Sequential Process ADBCFB÷INVEST DEFICS / CMPLNTS
      Sequential Process ADBEA+ASSURE GOVT PROP CMPLIANCE
      Sequential Process ADBEB+ASSURE TRANS/PKG CMPLIANCE
      Sequential Process ADBED+ASSURE SAFETY COMPLIANCE
      Sequential Process ABBCF+CONDUCT GOVT PROP CTL PAS
      Subject Area SA-GOVERNMENT-AGENCY-ROOT
      Subject Area IN-SCOPE
   ,
      Entity Type OFFER
   IS IDENTIFIED BY
      Entity Type PR
   is-associated-with
      Entity Type LNITM
      Entity Type LENTY-POP
   is-classified-by
      Entity Type ITEM-FSC
   IS DESCRIBED BY
```

```
        Attribute Type APRV-SRC-NAME
        Attribute Type CMPLX-CD
        Attribute Type HAZ-MTL-INDCT
        Attribute Type MFR-PART-NBR
        Attribute Type NATL-STK-NBR
        Attribute Type DSCRN-TEXT
      IS IMPLEMENTED BY
        Local Data Structure ITEM
        Local Data Structure is-associated-with.ITEM
        Local Data Structure ITEM.APRV-SRC-NAME
        Local Data Structure ITEM.MFR-PART-NBR
        Local Data Structure ITEM.is-procured-by.GOVAG
        Local Data Structure ITEM.is-supplied-by.GOVAG
        Local Data Structure is-associated-with.ITEM
        Local Data Structure examines.ITEM

Entity Type LENTY

   PROPERTIES:

      PURPOSE: FUNDAMENTAL

      LAST UPDATE: 1990/06/20 07:22 NEWUSER

      CREATED: 1990/04/23 08:17:14 NEWUSER

      COMMENTS:
      Fullname - Legal Entity

   ASSOCIATIONS:

      is-evaluated-by
        Entity Type PRFMC
      is-identified-by
        Entity Type ALERT-ACTN
      has
        Entity Type DEFCN
      receives
        Entity Type PRFMC-RCGTN
      responds-to
        Entity Type SOLCN
      submits
        Entity Type OFFER
      has
        Entity Type LENTY-SRV
      IS INVOLVED IN
        Subject Area SA-DEFICIENCY-ROOT
        Subject Area SA-OFFER-ROOT
```

Figure 3.1.7-3 List of Entity Types and their Attributes

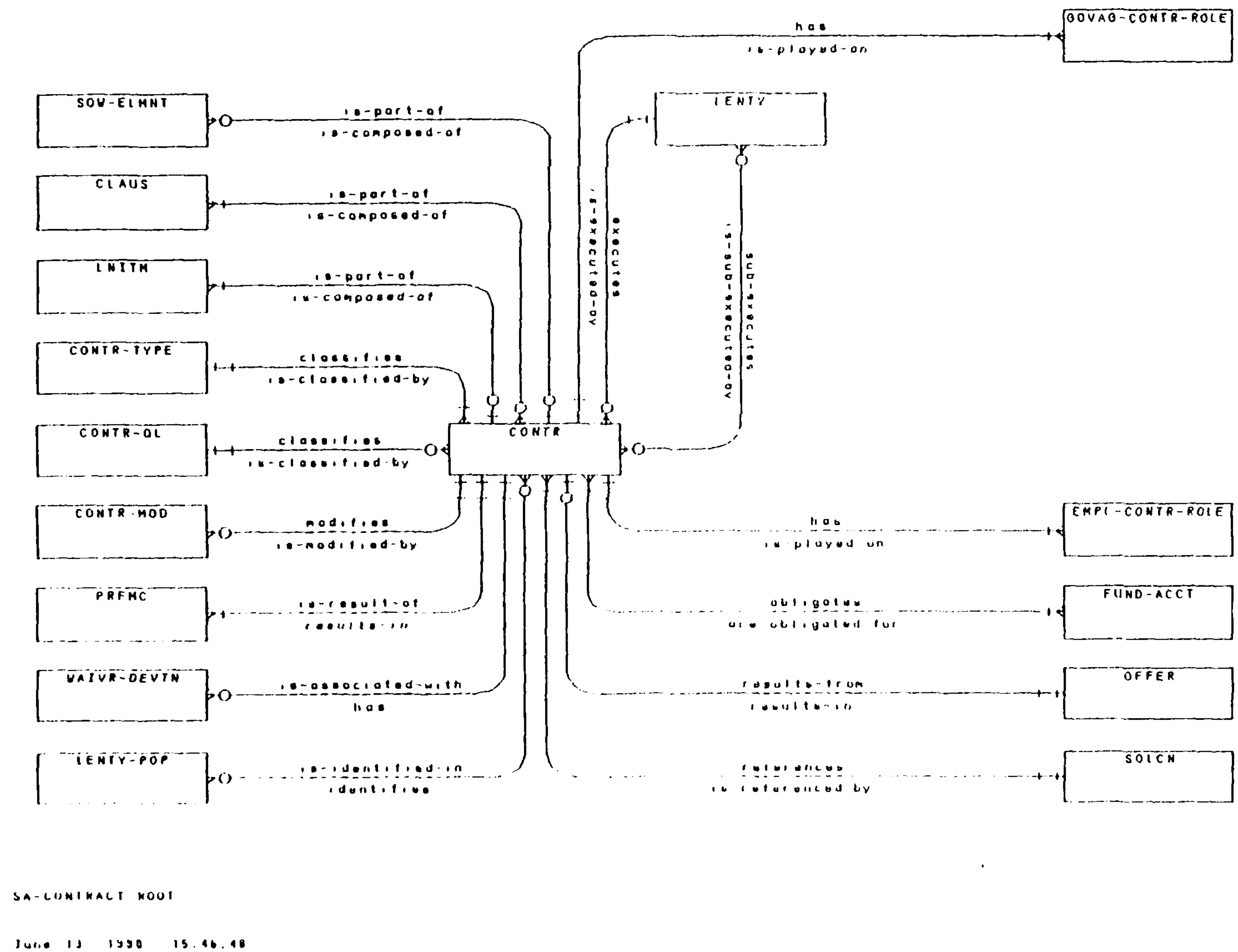


Figure 3.1.7-4 LIA Entity Relationship Diagram

Member Type Member Name	Attribute Name & Contents
ENTITY	
EN-CONTR	ALIAS

CATALOGUE
  CONCEPTUAL
  CONTRACTOR PROFILE
  ENTITY
  SUBSTANTIVE
DEFINITION
  A contract is a mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.
DESCRIPTION
  In addition to bilateral instruments, contracts include (but are not limited to) job orders or task letters issued under basic order agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
  Contract
SOURCE
  Team member knowledge
  FAR subpart 2.1
IDENTIFIER IS
  CT-CONTR-NBR
MULTI-ASSOCIATION TO
MULTI-ATTRIBUTES ARE
ONE-ASSOCIATION TO
ONE-ATTRIBUTES ARE
  CT-CONTR-CLOSD-DATE

  CT-CONTR-DOLR-AMT

  CT-CONTR-EFCTV-AWARD-DATE

  CT-CONTR-PAYMT-TERM-TEXT

  CT-CONTR-DPAS-RATE-CD

  CT-CONTR-STAT-INDCT

  CT-CONTR-OBGD-DOLR-AMT
SEE
SUB-ENTITIES ARE
  EN-CONTR-MOD

  EN-CLAUS

  EN-SOW-ELMNT

Member Type Member Name	Attribute Name & Contents	
==============================	==============================	==
	EN-LNITM	

Figure 3.1.7-5 Definitions of Entity Types

	CONTRACT	LEGAL ENTITY	OFFER
A ACQUISITION (F)	CRU	CRU	R
AA PURCHASE REQ PROCESSING (F)	R	R	
AB OFFER EVALUATION (F)	R	RU	CRU
AC CONTRACT AWARD (F)	CRU	CRU	R
AD CONTRACT ADMINISTRATION (F)	CRU	CRU	R
AE FORWARD PRICE RATE DEV (F)	R	CRU	
AF CONTRACTOR SYSTEM REVIEW (F)	CRU	CRU	
B INDUSTRIAL PREP PLANNING (F)	R	RU	
BA MOBILIZATION REQ'MENT DET (F)	R	RU	
BB IPP CANDIDATE ITEM IDENT (F)		RU	
BC PROD PLANNING SCHD DEV (F)		RU	
BD DEVELOP IPP PACKAGE (F)		R	

Process involves Entity Type

February 13, 1990 11:31:37

Figure 3.1.7-6 CRUD Association Matrix

3.1 APPENDIX A - DETAILED IEW PROCEDURES

3.1 DEVELOP INFORMATION VIEWS

3.1.1 PURPOSE

3.1.2 COMPONENTS/TERMS

3.1.3 INPUT PRODUCTS

3.1.4 GENERAL PROCEDURES

3.1.4.1 IDENTIFY ENTITIES IN THE ENTITY VIEW

3.1.4.1.1 LOGON TO THE ANALYSIS WORKBENCH
3.1.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'OBJECT LIST' OPTION
3.1.4.1.3 CLICK ON THE 'DESELECT ALL' RADIO BUTTON
3.1.4.1.4 SELECT 'SEQUENTIAL PROCESSES' WITHIN THE DIALOGUE BOX LIST
3.1.4.1.5 CLICK ON THE 'PROCEED' RADIO BUTTON
3.1.4.1.6 SELECT THE SEQUENTIAL PROCESS WHOSE INFORMATION VIEW YOU WISH TO DEVELOP/MODIFY
3.1.4.1.7 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'ENTITY DIAGRAM' OPTION (NOTE: DUE TO THE PREVIOUS EFFORT TO DEVELOP THE CRUD MATRIX, THE ENTITY DIAGRAM DISPLAYED SHOULD CONTAIN ONE OR MORE ENTITIES ALREADY ASSOCIATED WITH THE GIVEN PROCESS)
3.1.4.1.8 MOVE THE ENTITY DIAGRAM WINDOW TO THE TOP OF THE SCREEN
3.1.4.1.9 CLICK THE MOUSE SOMEWHERE WITHIN THE OBJECT LIST WINDOW IN ORDER TO 'ACTIVATE' THAT WINDOW
3.1.4.1.10 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'ACTION DIAGRAM' OPTION (NOTE: REMEMBER, THE PROCESS YOU ARE WORKING WITH IS STILL SELECTED IN THE OBJECT LIST WINDOW)
3.1.4.1.11 ARRANGE THE ACTION DIAGRAM AND ENTITY DIAGRAM WINDOWS SUCH THAT THE ENTITY DIAGRAM IS DISPLAYED ACROSS THE ENTIRE TOP OF THE SCREEN, TAKING UP AS LITTLE SPACE AS POSSIBLE WHILE REMAINING LEGIBLE, AND THE ACTION DIAGRAM IS DISPLAYED ACROSS THE BOTTOM OF THE SCREEN, WITH AS MUCH SPACE AS POSSIBLE (NOTE: IT IS EXPECTED THAT THE OBJECT LIST WILL THUS BE HIDDEN BEHIND THEM)
3.1.4.1.12 REVIEW THE ACTION DIAGRAM AND.MODIFY THE ENTITY DIAGRAM AS NECESSARY IN ORDER TO ENSURE THAT ALL ENTITIES REQUIRED BY THE ACTION DIAGRAM ARE PRESENT WITHIN THE ENTITY DIAGRAM

3.1.4.1.12.1 TO ADD AN ENTITY WITHIN THE ENTITY DIAGRAM

3.1.4.1.12.1.1 PULL DOWN THE 'ADD' MENU AND SELECT THE ENTITY OPTION
3.1.4.1.12.1.2 CLICK ON THE 'FIND' OPTION
3.1.4.1.12.1.3 SELECT THE DESIRED ENTITY FROM THE LIST THAT WILL APPEAR WITHIN THE DIALOGUE BOX AND CLICK ON THE 'PROCEED' RADIO BUTTON

3.1.4.1.12.2 TO EXCLUDE AN ENTITY FROM THE ENTITY DIAGRAM

3.1.4.1.12.2.1 SELECT THE ENTITY OR ENTITIES TO BE EXCLUDED

3.1.4.1.12.2.2 PULL DOWN THE 'EDIT' MENU AND SELECT THE 'EXCLUDE' OPTION (I M P O R T A N T ! - DO NOT ACCIDENTALLY SELECT THE 'DELETE' OPTION WHICH WILL BE NEAR THE 'EXCLUDE' OPTION ON THE 'EDIT' MENU!)

3.1.4.2 IDENTIFY THE ATTRIBUTES IN THE ENTITY DESCRIPTION

3.1.4.2.1 PERFORM STEPS OUTLINED IN 3.1.4.1 ABOVE

3.1.4.2.2 IN THE ENTITY DIAGRAM, SELECT THE ENTITY WHOSE ATTRIBUTES YOU WISH TO IDENTIFY

3.1.4.2.3 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'ENTITY TYPE DESCRIPTION' OPTION

3.1.4.2.3.1 TO ADD ATTRIBUTES TO THE ENTITY VIEW

3.1.4.2.3.1.1 PULL DOWN THE 'ADD' MENU AND SELECT THE 'ATTRIBUTE TYPE' OPTION

3.1.4.2.3.1.2 CLICK THE MOUSE ON THE 'FIND' OPTION

3.1.4.2.3.1.3 SELECT THE ATTRIBUTE TYPE(S) YOU WISH TO ADD (FROM WITHIN THE DIALOGUE BOX LIST OF ATTRIBUTES) AND CLICK ON THE 'PROCEED' RADIO BUTTON

3.1.4.2.3.2 TO EXCLUDE ATTRIBUTES FROM THE ENTITY VIEW

3.1.4.2.3.2.1 SELECT THE ATTRIBUTE(S) YOU WISH TO EXCLUDE FROM THE VIEW

3.1.4.2.3.2.2 PULL DOWN THE 'EDIT' MENU AND SELECT THE 'EXCLUDE' OPTION (I M P O R T A N T! - DO NOT ACCIDENTALLY SELECT THE 'DELETE' OPTION WHICH WILL BE DISPLAYED NEAR THE 'EXCLUDE' OPTION ON THE 'EDIT' MENU)

3.1 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

3.1 DEVELOP INFORMATION VIEWS

There are no PC Dictionary procedures for this section at this time. Decisions need to be made as to what should be stored in PC DICTIONARY due to the information view activity.

3.2 DEVELOP ACTION DIAGRAMS

Figure 3.2-1 Step Overview
Figure 3.2-2 Step Products
Figure 3.2-3 Step Components

3.2.1 PURPOSE

3.2.2 COMPONENTS/TERMS

3.2.2.1 Sequential Processes
3.2.2.2 Action
3.2.2.3 Data Access or Data Store Access
3.2.2.3 Exit
3.2.2.4 Repitition Block
3.2.2.5 Selection Block

3.2.3 INPUT PRODUCTS

3.2.3.1 Entity/Relationship Diagram with Classification Entities
3.2.3.2 Process Dependency Diagrams
3.2.3.3 Detailed Process Descriptions
3.2.3.4 Process Decomposition Diagrams
3.2.3.5 Logical Information Architecture (LIA) CRUD Association Matrix

3.2.4 GENERAL PROCEDURES

3.2.4.1 Review LIA CRUD Association Matrix
3.2.4.2 Review Process Detail Reports
3.2.4.3 Review Process Decomposition Diagrams
3.2.4.4 Review Process Dependency Diagrams
3.2.4.5 Develop Action Diagrams

3.2.5 OUTPUT PRODUCTS

3.2.5.1 Action Diagrams

3.2.6 RULES

3.2.6.1 Sequential Process Naming Notations

3.2.6.1.1 Initial Identification of Sequential Processes
3.2.6.1.2 Removal of Sequential Process Identification

3.2.6.1.2.1 Removal of Notation
3.2.6.1.2.2 Return Process to Full Process Status

3.2.6.1.3 Final Identification of Sequential Processes

3.2.6.2 Data Access Conventions

3.2.6.2.1 Entity Reads

3.2.6.2.1.1 Data Description
3.2.6.2.1.2 Multiple Reads

3.2.6.3 Level of Detail
3.2.6.4 Embedded Sequential Processes

3.2.6.4.1 Multiple Access to Individual Embedded Sequential Processes
3.2.6.4.2 Dummy Block Notation
3.2.6.4.3 Use of Keywords

3.2.7 EXAMPLES

Figure 3.2.7-1 Entity/Relationship Diagram with Classification Entities
Figure 3.2.7-2 Process Dependency Diagram
Figure 3.2.7-3 Detailed Process Description
Figure 3.2.7-4 Process Decomposition Diagram
Figure 3.2.7-5 Logical Information Architecture (LIA) CRUD Association Matrix
Figure 3.2.7-6 Action Diagram

3.2 Appendix A - Detailed IEW Procedures
3.2 Appendix B - Detailed PC Dictionary Procedures

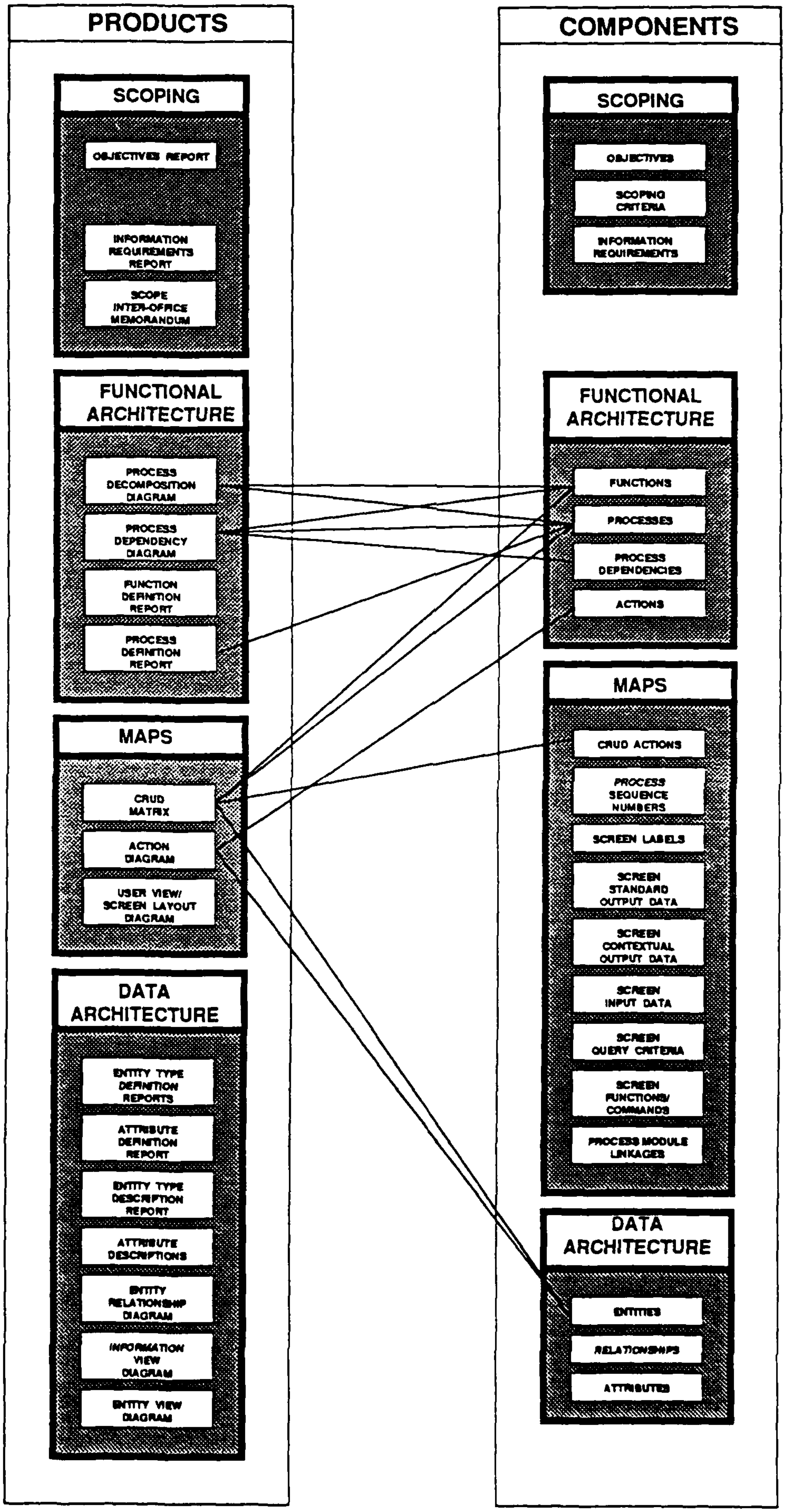


FIGURE 3.2-1
STEP OVERVIEW

3.2 DEVELOP ACTION DIAGRAMS STEPS / PRODUCTS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. REVIEW CRUD ASSOCIATION MATRIX									R									
2. REVIEW PROCESS DETAIL REPORTS								R										
3. REVIEW PROCESS DECOMPOSITION DIAGRAMS					R													
4. REVIEW PROCESS DEPENDENCY DIAGRAMS						R												
5. DEVELOP ACTION DIAGRAMS										C								

FIGURE 3.2-2
STEP PRODUCTS

COMPONENTS / 3.2 DEVELOP ACTION DIAGRAMS STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW CRUD ASSOCIATION MATRIX								R											
2. REVIEW PROCESS DETAIL REPORTS					R														
3. REVIEW PROCESS DECOMPOSITION DIAGRAMS					R														
4. REVIEW PROCESS DEPENDENCY DIAGRAMS					R														
5. DEVELOP ACTION DIAGRAMS							C												

FIGURE 3.2-3
STEP COMPONENTS

3.2 DEVELOP ACTION DIAGRAMS

3.2.1 PURPOSE

Action Diagrams (AD's) describe the series of actions that compose a sequential process. An action diagram consists of a sequence of steps to follow toward some purpose. Each step consists of one action to perform, a group of actions that are combined to form a block, or another sequential process. Brackets identify the actions included in a block, each of which is a complex action; a nested block is just one more action to perform. Actions execute in order from top to bottom. Conditions on the blocks determine whether the block is executed, and if so, how often. Individual actions, such as 'CALCULATE SUM OF ...', and 'NOTIFY OFFEROR OF DECISION' are manually typed into the AD in the logically proper location within the appropriate block(s). However, the identification of 'C'reate, 'R'ead, 'U'pdate, and 'D'elete actions (CRUD) are handled in a special manner, and are accomplished by utilizing the embedded 'ADD' pull down menu (DATA STORE OPERATION). Each CRUD Action must be coupled with a reference to an entity from the Entity Relationship Diagram (ERD), to the right of which will be an area where text may be manually entered to describe the data to be Created, Retrieved, Updated, and/or Deleted.

The Action Diagrammer is available in the IEW Analysis Workstation. When an AD is complete, it can be used by the team members to ensure that a complete and comprehensive understanding of each sequential process has been recorded, including significant processing decision logic based on classification attribute values. The AD serves as the basic outline for Module Action Diagrams, which represent the most detailed program logic and will eventually be produced in the IEW Design Workstation.

3.2.2 COMPONENTS/TERMS

3.2.2.1 Sequential Processes

A Sequential Process is a process whose steps or subprocesses are executed one at a time in a prescribed order. It has identifiable inputs and outputs expressed as information views of the data architecture and as explicit references to individual Entities. Each step of a Sequential Process represents either an individual action, a group (block) of actions, or another Sequential Process. Sequential Processes may be performed by more than one organizational unit in a physical system.

3.2.2.2 Action

An action is the most fundamental unit of a Sequential Process and of an AD. An action consists of a textual description of an elementary step to be taken (e.g. 'COMPARE NUMBER DELIVERED WITH NUMBER ORDERED/SPECIFIED ON CONTRACT'). However, the identification of 'C'reate, 'R'ead, 'U'pdate, and 'D'elete actions (CRUD) is handled in a special manner, which is described in 3.1.2.3 below.

3.2.2.3 Data Access or Data Store Access

Action diagrams represent data accesses by specifying the access type followed by the name of the accessed entity type in a rectangle. There are four possible access types: Create, Read, Update, and Delete. The identification of Create, Read, Update, and Delete actions is handled in a special manner, and is accomplished by utilizing the embedded *'ADD' pull down menu (DATA STORE OPERATION). Each CRUD Action must be* coupled with a reference to an entity from the Entity Relationship Diagram (ERD), to the right of which will be an area where text may be manually entered to describe the data to be Created, Retrieved, Updated, and/or Deleted.

3.2.2.3 Exit

The Exit component always terminates the execution of a block of actions.

3.2.2.4 Repitition Block

Repetition blocks control the iteration of actions, that is, how often they are to be repeated. There are three kinds of repetition blocks: the Do Until block, the Do While block, and the For Each block.

3.2.2.5 Selection Block

Selection blocks define the conditions under which their stated actions are to be executed. There are three types of selection blocks: the If block, the If Else block, and the Multiway block.

3.2.3 INPUT PRODUCTS

3.2.3.1 Entity/Relationship Diagram with Classification Entities (Figure 3.2.7-1)

See previous definitions.

3.2.3.2 Process Dependency Diagram (Figure 3.2.7-2)

See previous definitions.

3.2.3.3 Detailed Process Description (Figure 3.2.7-3)

See previous definitions.

3.2.3.4 Process Decomposition Diagram (Figure 3.2.7-4)

See previous definitions.

3.2.3.5 Logical Information Architecture (LIA) CRUD Association Matrix (Figure 3.2.7-5)

See previous definitions.

3.2.4 GENERAL PROCEDURES

3.2.4.1 Review LIA CRUD Association Matrix

Review the functions and processes in the LIA CRUD Association Matrix. Identify all of the lowest-level, in scope-processes which 'C'reate, 'R'etrieve, 'U'pdate, and/or 'D'elete data.

3.2.4.2 Review Process Detail Reports

Review the detailed descriptions of each process identified previously in the LIA CRUD Association Matrix. Identify those processes whose 'COMMENTS' Sections mark them as 'SEQUENTIAL PROCESSES'. If not already done, change the name of the process such that the blank space between the character code at the beginning of the name and the first character of the descriptive process title is replace with a minus sign ('-').

3.2.4.3 Review Process Decomposition Diagrams

Locate those processes identified as Sequential Processes on the overall Process Decomposition Diagram, and identify the parent process.

3.2.4.4 Review Process Dependency Diagrams

For each process identified as a Sequential Process previously, display the Process Dependency Diagram belonging to the parent process.

3.2.4.5 Develop Action Diagrams

For each process identified as a Sequential Process, open up a blank AD. Input the contents of the AD based upon the Data Flows identified in the Process Dependency Diagrams, the Action(s) specified in the LIA CRUD Association Matrix, and the logic described in the Process Detail Report for the given process. When the AD has been completed, alter the name such that the minus sign is replaced by a plus ('+') sign.

3.2.5 OUTPUT PRODUCTS

3.2.5.1 Action Diagrams

Completed Action Diagrams (ADs) *(see Figure 3.2.7-6) represent the only* output products from this effort. It should be understood that ADs are documentative representations of the logic and syntax of sequential processes, not active, embedded models. As such, ADs are themselves individual constructs, rather than collections of individual constructs each of which may be automatically related and described by the tools. To understand this further, think of the Action Diagrams as little more than sections of textual descriptions produced in a word processor. However, the tools provide a powerful and efficient, special purpose text editor in the form of the Action Diagrammer Facility, which allows for the quick and efficient construction of these semi-graphic descriptions. In a later phase, another form of Action Diagrams (Module Action Diagrams (MADs)) will be developed based upon the content of these ADs, and the MADs will be active, embedded process modeling components.

3.2.6 RULES

3.2.6.1 Sequential Process Naming Notations

3.2.6.1.1 Initial Identification of Sequential Processes

Upon identifying a process as sequential in nature, immediately replace the blank space between the alpha process code and the first character of the descriptive name with a minus ('-') sign.

3.2.6.1.2 Removal of Sequential Process Identification

3.2.6.1.2.1 Removal of Notation

Upon identifying a process previously thought to be sequential in nature as a non-sequential process, ensure that one blank space replaces the minus or plus ('+') sign following the alpha process code and before the first character of the descriptive name.

3.2.6.1.2.2 Return Process to Full Process Status

Upon identifying a process previously thought to be sequential in nature as a non-sequential process, ensure that the process is viewed by the tool as a non-sequential process by entering the process's AD, and deleting everything (including the input and output data flows).

3.2.6.1.3 Final Identification of Sequential Processes

Upon completion of the AD for a sequential process, replace the aforementioned minus sign in the process's name with a plus sign.

3.2.6.2 Data Access Conventions

3.2.6.2.1 Entity Reads

3.2.6.2.1.1 Data Description

When performing a READ Action on an entity, always place a description of the data to be read to the right of the entity icon.

3.2.6.2.1.2 Multiple Reads

When more than one type of information is to be read from the same entity, break up the reading process into more than one READ Action with each individual type of information description to the right of the entity icon for each READ Action.

3.2.6.3 Level of Detail

Action Diagrams should not be cryptic. Feel free to enter as much descriptive text as is necessary to completely communicate the intent and scope of each individual action to any reader.

3.2.6.4 Embedded Sequential Processes

Individual ADs can, in place of a block of actions, reference another sequential process. There is no requirement to write ADs at this level that do that. However, if there comes a situation where this is desirable, please adhere to the following rules:

3.2.6.4.1 Multiple Access to Individual Embedded Sequential Processes

More than one Action Diagram may reference the SAME embedded process only if the entire Pilot Team agrees that the embedded process's requirements, both processing and data, are precisely the same from all ADs that reference it.

3.2.6.4.2 Dummy Block Notation

Do not use the Embedded Process feature to mark a place in an Action Diagram where a block of actions will eventually exist but for whatever reason cannot be identified now. Rather, create a TITLE BLOCK bracket whose title is DUMMY BLOCK <name>, and place a brief description of the purpose of the omitted actions within the TITLE BLOCK Bracket.

3.2.6.4.3 Use of Keywords

Certain words with specific meanings and implications are used to describe actions embedded within the Contractor Profile Action Diagrams (ADs). These words exist only in that portion of each AD entered by the AD's author, and must not be confused with the IEW generated, lower-case reserved words such as 'for each', 'if', 'else', and so forth.

The attempt must be made to utilize these keywords in a consistant manner throughout the Action Diagramming effort. Still, it must be understood that the ADs are textual in nature, and although a certain level of rigor and structure must be applied during their creation, they do not approach the level of structure required of a Program Definition Language, for example. As such, the full, proper, and correct understanding of any particular action must come not only from the description of the action itself, but from an understanding of the action within its surrounding context.

The referenced keywords, along with definitions, are as follows:

KEYWORD	**DEFINITION**
IDENTIFY	This indicates an action in which a piece of information is located, scrutinized, and made immediately available for use. Normally, the referenced piece of information will be a subset of some larger information set, such as a document, that had been read or received previously within the AD. A particularly valuable use of this keyword is identifying pieces of information, prior to a 'READ' action, that are necessary in order to properly execute the read. In other words, in order to identify the query criteria for the given READ.

EXAMPLE **IDENTIFY OFFEROR**

IDENTIFY BUYING ACTIVITY
(followed perhaps by a READ operation on ALL HISTORIC CONTRACTS THAT THE GIVEN BUYING ACTIVITY HAS AWARDED TO THE GIVEN OFFEROR)

NOTE This keyword implies all that the IDENTIFY keyword implies. Additionally, the act of 'jotting down' the given piece of information is implied, such that it may be used later on within the AD. Typically, this keyword may be used to create a temporary list of amalgamated pieces of associated data, sometimes from different sources.

EXAMPLE

```
for each HISTORIC CONTRACT FOR GIVEN OFFEROR
   NOTE CONTRACT NUMBER
   NOTE START DATE
   NOTE END DATE
   NOTE BUYING ACTIVITY
   for each DISCREPANCY REPORT FOR GIVEN
     CONTRACT
      if OFFEROR WAS RESPONSIBLE
         NOTE DISCREPANCY AND DESCRIPTION
         NOTE RESOLUTION
```

(This would produce a single list of all of the contracts the given offeror has performed on, along with certain additional information, and for each, a sub-list identifying all of the discrepancies deemed to have been the offeror's responsibility and each's resolution)

KEYWORD **DEFINITION**

DOCUMENT This keyword implies all that the IDENTIFY keyword implies. Additionally, the act of permanently storing the referenced information such that it may be READ by future processes is implied.

EXAMPLE

```
CALCULATE UNBURDENED COST OF ITEM =
   COST PER UNIT X NUMBER OF UNITS
DOCUMENT RESULT
```

CALCULATE The CALCULATE keyword indicates that a numerical formula is being described. A CALCULATE action will entail input or factorial information, and a result datum. See the discussion on the DOCUMENT keyword above for an example.

Often, an essential action within a process derives information not through the application of a numerical or logical formula, but rather through a mental process as applied by an experienced and knowledgeable individual or group. Sometimes this mental process is structured in accordance with pre-defined guidelines of varying detail, and other times not. In any case, it is not the intent of the AD to capture these mental processes themselves, but rather to:

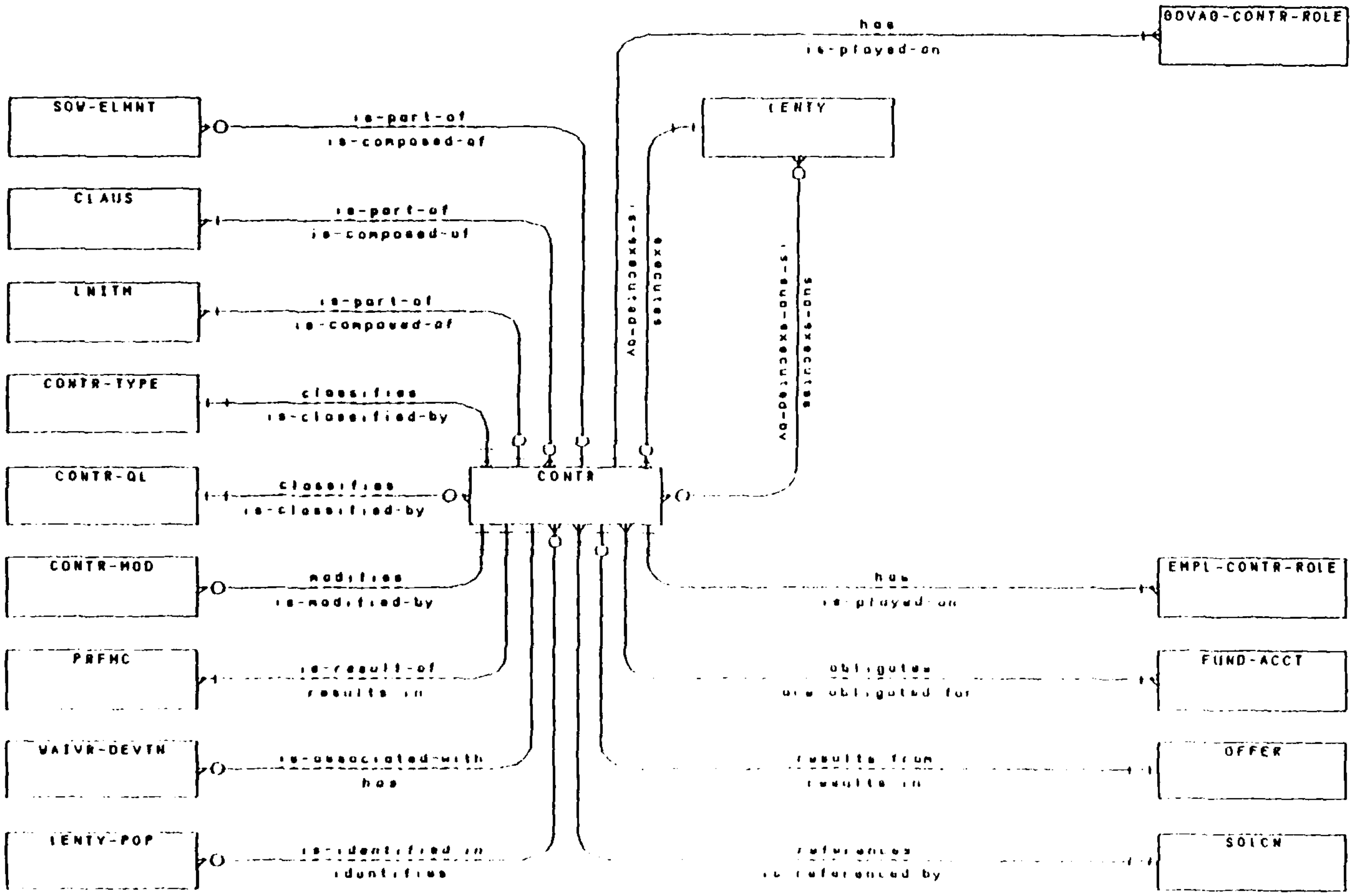
1. Collect all of the information required in order to properly apply the given mental process

2. Capture the result of the mental process
3. Describe any conditional logic based upon the result of the mental process

Each of the following three keywords describes the application of a mental process.

KEYWORD	DEFINITION
EVALUATE	This keyword indicates that a judgement of some type must be rendered at this point, normally a value judgement.
	EXAMPLE — EVALUATE THE OFFEROR'S QUALITY PERFORMANCE HISTORY AS BEING ADEQUATE OR INADEQUATE
DETERMINE	This keyword differs from EVALUATE only in that it implies that a fairly well-defined set of guidelines are available to base the determination on, and that the given mental process is more structured in nature.
	EXAMPLE — DETERMINE THE MOST EXPEDIENT METHOD OF DELIVERY
FORMULATE	This keyword indicates the application of a creative mental process.
	EXAMPLE — FORMULATE CORRECTIVE ACTION PLAN FORMULATE QUALITY ASSURANCE LETTER OF INSTRUCTIONS FORMULATE DESCRIPTIVE SUMMARY OF OFFEROR'S HISTORIC TRANSPORTATION PERFORMANCE

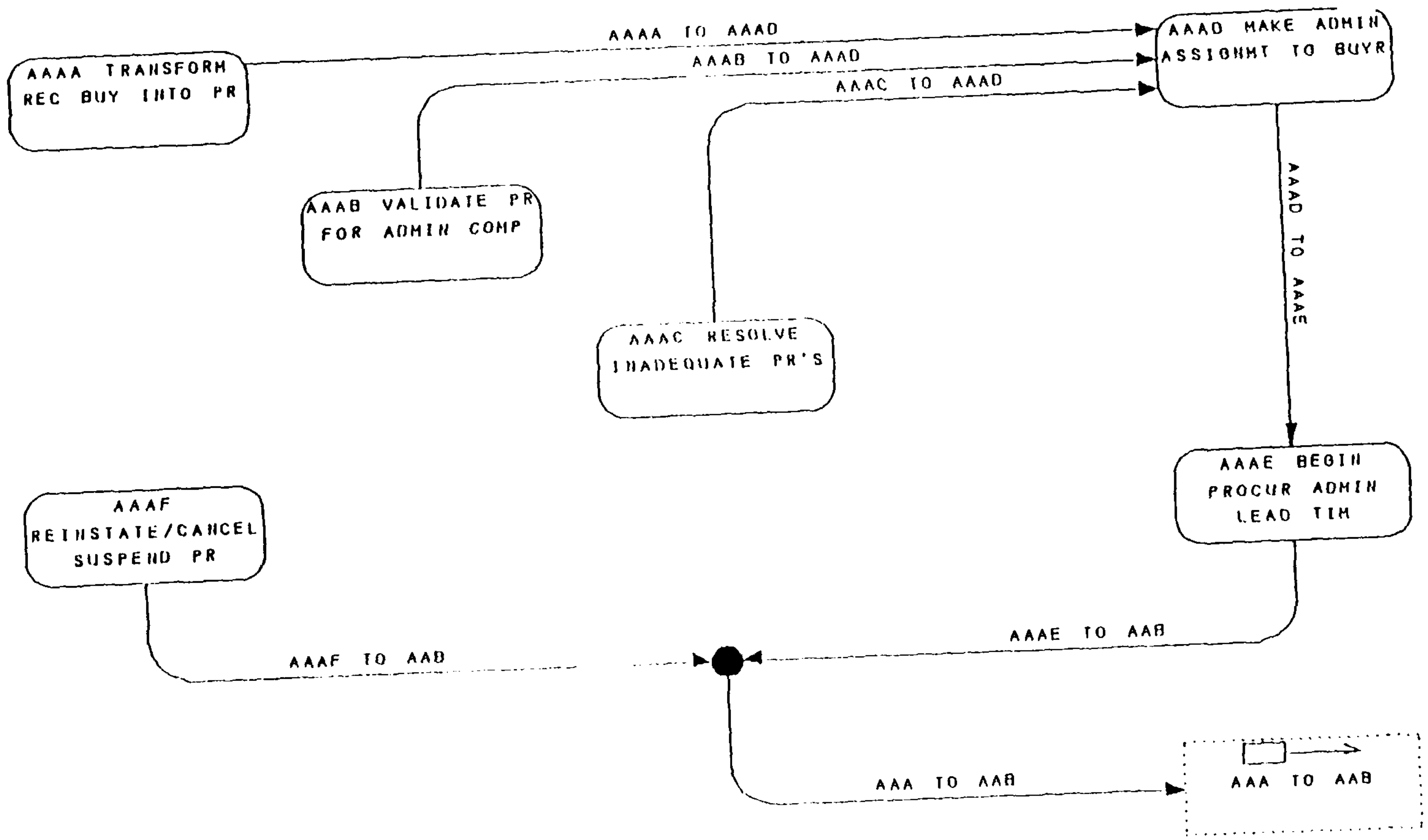
3.2.7 EXAMPLES



SA CONTRACT ROOT

June 13 1990 15:46:48

Figure 3.2.7-1 Entity/Relationship Diagram with Classification Entities



AAA ASSURE ADEQUACY OF PR

May 18, 1990 12:51:28

Figure 3.2.7-2 Process Dependency Diagrams

Information Engineering Workbench Report
Object Summary Report
J ly 3, 1990 10:05:07 NEWUSER V06 Page 1

Process AAAB VALIDATE PR FOR ADMIN COMP

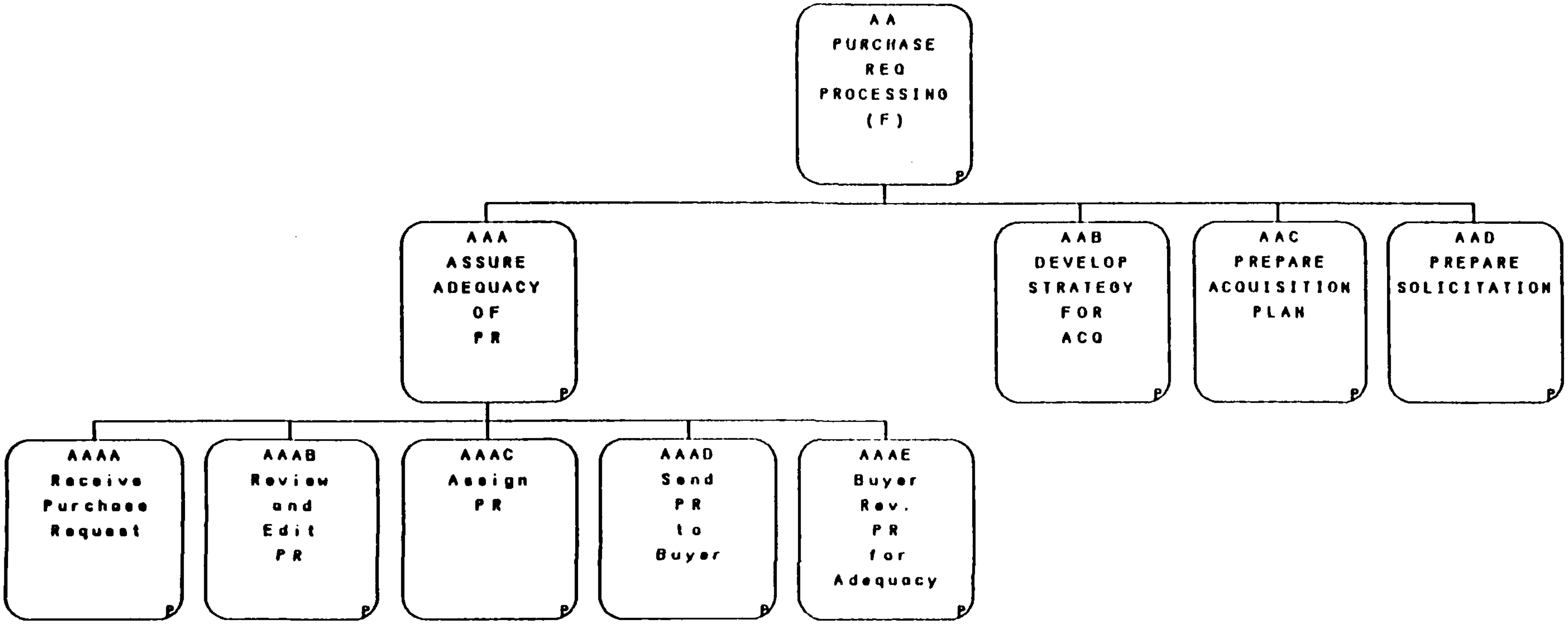
PROPERTIES:

DEFINITION:
VALIDATE PR FOR ADMINISTRATIVE COMPLETENESS

THIS PROCESS REVIEWS THE COMPLETE PR TO ENSURE THAT ALL THE LANGUAGE IS CORRECT AND COMPLETE, FOR EXAMPLE:

A. VALIDATE DESCRIPTIVE NSN DATA
B. REVIEW TECHNICAL DATA FILE (ITEM DATA)
C. REVIEW PAST BUY HISTORY (CONTRACTS). CURRENT AND CLOSED CONTRACTS FOR THE LAST FIVE YEARS (CONTRACT HISTORY)
D. REVIEW CONTRACTING GUIDANCE DATA
E. ENSURE THAT COMMITMENT AUTHORITY HAS BEEN ESTABLISHED

Figure 3.2.7-3 Detailed Process Descriptions



AA PURCHASE REQ PROCESSINO (F)

Figure 3.2.7-4 Process Decomposition Diagram

	CONTRACT	LEGAL ENTITY	OFFER
AA PURCHASE REQ PROCESSING (F)	R	R	R
AAA ASSURE ADEQUACY OF PR	R	R	R
AAAA Receive Purchase Request			
AAAB Review and Edit PR	R	R	R
AAAC Assign PR			
AAAD Send PR to Buyer			
AAAE Buyer Rev. PR for Adequacy			

Process involves Entity Type

Figure 3.2.7-5 LIA CRUD Association Matrix

- * CONDUCT TRANSPORTATION PRE-AWARD SURVEY (PAS)
  - READ REQUEST FOR TRANSPORTATION PAS (SF 1403)
  - IDENTIFY SOLICITATION
  - IDENTIFY OFFEROR
  - READ OFFER
  - * FOR SOLICITATION TRANSPORTATION REQUIREMENTS
    - Read LNITM
    - Read SOW-ELMNT
    - Read CLAUS
    - Read ITEM
  - IDENTIFY SOLICITATION LINE ITEMS (SLIN'S)
  - For Each SLIN
    - IDENTIFY ITEMS
    - For Each ITEM
      - * NOTE THE FOLLOWING:
        - ITEM
        - PLACE(S) OF ORIGIN
        - INTERMEDIATE PLACES WITHIN PROCESS
        - DELIVERY SCHEDULE
        - PLACE(S) OF DELIVERY
        - EXPLICIT TRANSPORTATION REQUIREMENTS
        - TRANSPORTATION PRIORITIES, AS EVALUATED
        - SHIPMENT CHARACTERISTICS
        - QUANTITY
        - FREIGHT ON BOARD (FOB) TERMS
        - FREIGHT CLASSIFICATION (NMFC OR UFC)
      - READ APPLICABLE TRANSPORTATION REGS/LAWS ASSOCIATED W/ITEM TYPES
      - NOTE REQUIREMENTS AS GENERATED BY APPLICABLE REGULATIONS AND LAWS

NOTE REQUIREMENTS AS GENERATED BY APPLICABLE REGULATIONS AND LAWS

FORMULATE/NOTE ADDITIONAL REQUIREMENTS

For Each ITEM AS NOTED

Read $\boxed{\text{PAS-RCMDN}}$

Read $\boxed{\text{TRNSP-CBLTY}}$

IDENTIFY HISTORIC PAS'S FOR GIVEN OFFEROR

For Each PAS IDENTIFIED

If CURRENT (TBD)

NOTE RECOMMENDATION AND JUSTIFICATION

NOTE TRANSPORTATION FACILITIES

If FOR SAME / SIMILAR ITEM

NOTE WITH SPECIAL SIGNIFICANCE

* FOR HISTORIC CONTRACT TRANSPORTATION PERFORMANCE

Read $\boxed{\text{PROD-DLVAC}}$

Read $\boxed{\text{WAIVR-DEVTN}}$

Read $\boxed{\text{LENTY-POP}}$

Read $\boxed{\text{DISCL}}$

$\boxed{\text{DEFCN}}$

```
Read      [          ]

Read      [DEFCN-INVST-TYPE]

IDENTIFY PAST SHIPMENTS
For Each PAST SHIPMENT
  * NOTE THE FOLLOWING:
        ORIGIN
        DESTINATION
        WEIGHT
        ESTIMATED COST
        CONTRACT NUMBER
        TRANPORTATION CONTROL NUMBER (FREIGHT INFORMATION SYSTEM)
        ACTUAL DELIVERED DATE AT DESTINATION
        ACTUAL SHIPPING CHARGES PAID
        NAME OF CARRIER
        EVALUATE CONTRACTOR'S PERFORMANCE FOR GIVEN SHIPMENT
        NOTE RESULT

IDENTIFY SHIPMENT DEFICIENCIES
For Each PAST DEFICIENCY IDENTIFIED
    EVALUATE IF OFFEROR WAS RESPONSIBLE
    If YES
        NOTE DEFICIENCY (DESCRIPTION)
        NOTE DATE(S)
        NOTE ITEM(S)
        NOTE IMPACT TO GOVERNMENT

SUMMARIZE/EVALUATE LIST OF DEFICIENCIES
NOTE RESULT
NOTE TRANSPORTATION FACILITY INFORMATION (CAPABILITY)
EVALUATE IF ON-SITE VISIT REQUIRED
If YES
    CONDUCT ON-SITE VISIT
    NOTE CURRENT FACILITIES (CAPABILITIES)
```

EVALUATE OFFEROR'S UNDERSTANDING OF TRANSPORTATION REQUIREMENTS

NOTE RESULT

DOCUMENT CURRENT FACILITIES/CAPABILITIES

COMPARE OFFEROR'S CAPABILITIES TO REQUIREMENTS AS NOTED

SUMMARIZE/EVALUATE/NOTE RESULT OF COMPARISON

COMPARE OFFEROR'S PERFORMANCE HISTORY TO REQUIREMENTS AS NOTED

SUMMARIZE/EVALUATE/NOTE RESULT OF COMPARISON

EVALUATE OFFEROR'S ABILITY TO MEET TRANSPORTATION REQUIREMENTS AS NOTED

DOCUMENT RESULT

ABBCG+CONDUCT TRANSPORTATION PAS

June 18, 1990 7:39:54

Figure 3.2.7-6 Action Diagram

APPENDIX A - DETAILED IEW PROCEDURES

3.2 DEVELOP ACTION DIAGRAMS

3.2.1 PURPOSE

3.2.2 COMPONENTS/TERMS

3.2.3 INPUT PRODUCTS

3.2.4 GENERAL PROCEDURES

3.2.4.1 REVIEW LIA CRUD ASSOCIATION MATRIX

3.2.4.1.1 LOGON TO THE PLANNING WORKSTATION
3.2.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'ASSOCIATION MATRIX'
3.2.4.1.3 SELECT 'PROCESS' FROM THE TOP PORTION OF THE DIALOGUE BOX
3.2.4.1.4 SELECT 'ENTITY TYPE' FROM THE BOTTOM PORTION OF THE DIALOGUE BOX
3.2.4.1.5 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SORT ROWS'
3.2.4.1.6 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SORT COLUMNS'
3.2.4.1.7 PULL DOWN THE 'ASSOCIATION MATRIX' MENU AND SELECT 'SHOW PROPERTIES'
3.2.4.1.8 SELECT 'ACTION' FROM THE DIALOGUE BOX DISPLAYED

3.2.4.2 REVIEW PROCESS DETAIL REPORTS

3.2.4.2.1 PERFORM STEPS OUTLINED IN 3.1.4.1
3.2.4.2.2 SELECT EACH PROCESS IN TURN (ONE AT A TIME) BY CLICKING THE MOUSE ON IT.
3.2.4.2.3 FOR EACH PROCESS SELECTED, PERFORM THE FOLLOWING ACTIONS

3.2.4.2.3.1 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DETAILS'
3.2.4.2.3.2 READ THE 'DEFINITION' AND 'COMMENTS' BOXES
3.2.4.2.3.3 IF THE 'COMMENTS' BOX INDICATES THAT THE PROCESS HAS BEEN IDENTIFIED AS A SEQUENTIAL PROCESS, PERFORM THE FOLLOWING ACTIONS

3.2.4.2.3.3.1 PLACE THE CURSOR IN THE 'TITLE' BOX DIRECTLY TO THE RIGHT OF THE ALPHA PROCESS CODE AND LEFT OF THE FIRST WORD OF THE PROCESS'S DESCRIPTIVE TITLE
3.2.4.2.3.3.2 CHANGE WHATEVER IS THERE (PROBABLY EITHER A SPACE OR AN ASTERISK) TO A MINUS SIGN
3.2.4.2.3.3.3 PULL DOWN THE 'EDIT' MENU AND SELECT 'SAVE'
3.2.4.2.3.3.4 CLOSE THE 'DETAILS' DIALOGUE BOX
3.2.4.2.3.3.5 UNSELECT THE PREVIOUS PROCESS IN THE MATRIX BY CLICKING THE MOUSE ON IT ONCE, AND PROCEED TO THE NEXT PROCESS

3.2.4.3 REVIEW PROCESS DECOMPOSITION DIAGRAMS

3.2.4.3.1 LOGON TO ANALYSIS WORKBENCH

3.2.4.3.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DECOMPOSITION DIAGRAM'
3.2.4.3.3 CLICK ON THE 'PROCESS' RADIO BUTTON
3.2.4.3.4 CLICK ON THE 'FIND' RADIO BUTTON
3.2.4.3.5 IDENTIFY AND SELECT THE PROCESS THAT IS THE PARENT TO THE INDIVIDUAL SEQUENTIAL PROCESS YOU ARE CURRENTLY REVIEWING
3.2.4.3.6 CLICK ON THE 'PROCEED' RADIO BUTTON

3.2.4.4 REVIEW PROCESS DEPENDENCY DIAGRAM

3.2.4.4.1 LOGON TO ANALYSIS WORKBENCH
3.2.4.4.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'DATA FLOW DIAGRAMMER'
3.2.4.4.3 CLICK ON THE 'FIND' RADIO BUTTON
3.2.4.4.4 IDENTIFY AND SELECT THE PROCESS THAT IS THE PARENT TO THE INDIVIDUAL SEQUENTIAL PROCESS YOU ARE CURRENTLY REVIEWING
3.2.4.4.5 CLICK ON THE 'PROCEED' RADIO BUTTON

3.2.4.5 DEVELOP ACTION DIAGRAMS

3.2.4.5.1 LOGON TO ANALYSIS WORKBENCH
3.2.4.5.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'OBJECT LIST'
3.2.4.5.3 CLICK ON THE 'DESELECT ALL' RADIO BUTTON
3.2.4.5.4 SELECT 'PROCESSES' FROM THE DIALOGUE BOX AND CLICK ON THE 'PROCEED' RADIO BUTTON (NOTE: TO MODIFY AN EXISTING ACTION DIAGRAM, SELECT 'SEQUENTIAL PROCESSES' RATHER THAN 'PROCESS')
3.2.4.5.5 SELECT THE PROCESS WHOSE ACTION DIAGRAM YOU WISH TO CREATE
3.2.4.5.6 PULL DOWN THE 'DISPLAY' MENU AND SELECT 'ACTION DIAGRAM'

3.2 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

3.2 DEVELOP ACTION DIAGRAMS

There are no PC Dictionary procedures for this section at this time. Decisions need to be made as to what should be stored in PC DICTIONARY due to the action diagram activity.

3.3 DEVELOP ATTRIBUTE DESCRIPTIONS

Figure 3.3-1 Step Overview
Figure 3.3-2 Step Products
Figure 3.3-3 Step Components

3.3.1 PURPOSE

3.3.2 COMPONENTS/TERMS

3.3.2.1 Attribute

3.3.3 INPUT PRODUCTS

3.3.3.1 Attribute Reports

3.3.4 GENERAL PROCEDURES

3.3.4.1 Review Attribute Definitions
3.3.4.2 Determine Attribute Source
3.3.4.3 Identify Other Attribute Information

3.3.5 OUTPUT PRODUCTS

3.3.5.1 Attribute Reports

3.3.6 RULES

3.3.6.1 Complete Sentences
3.3.6.2 Grammatically Correct
3.3.6.3 Circular Statements
3.3.6.4 Objective and Quantitative Statements
3.3.6.5 Ambiguity
3.3.6.6 Stand Alone
3.3.6.7 Organizational Jargon
3.3.6.8 Acronyms
3.3.6.9 Self Contained
3.3.6.10 Personal Pronouns
3.3.6.11 Context
3.3.6.12 Uniqueness
3.3.6.13 Contents
3.3.6.14 Length

3.3.7 EXAMPLE

Figure 3.3.7-1 Attribute Report

3.3 Appendix A - Detailed IEW Procedures
3.3 Appendix B - Detailed PC Dictionary Procedures

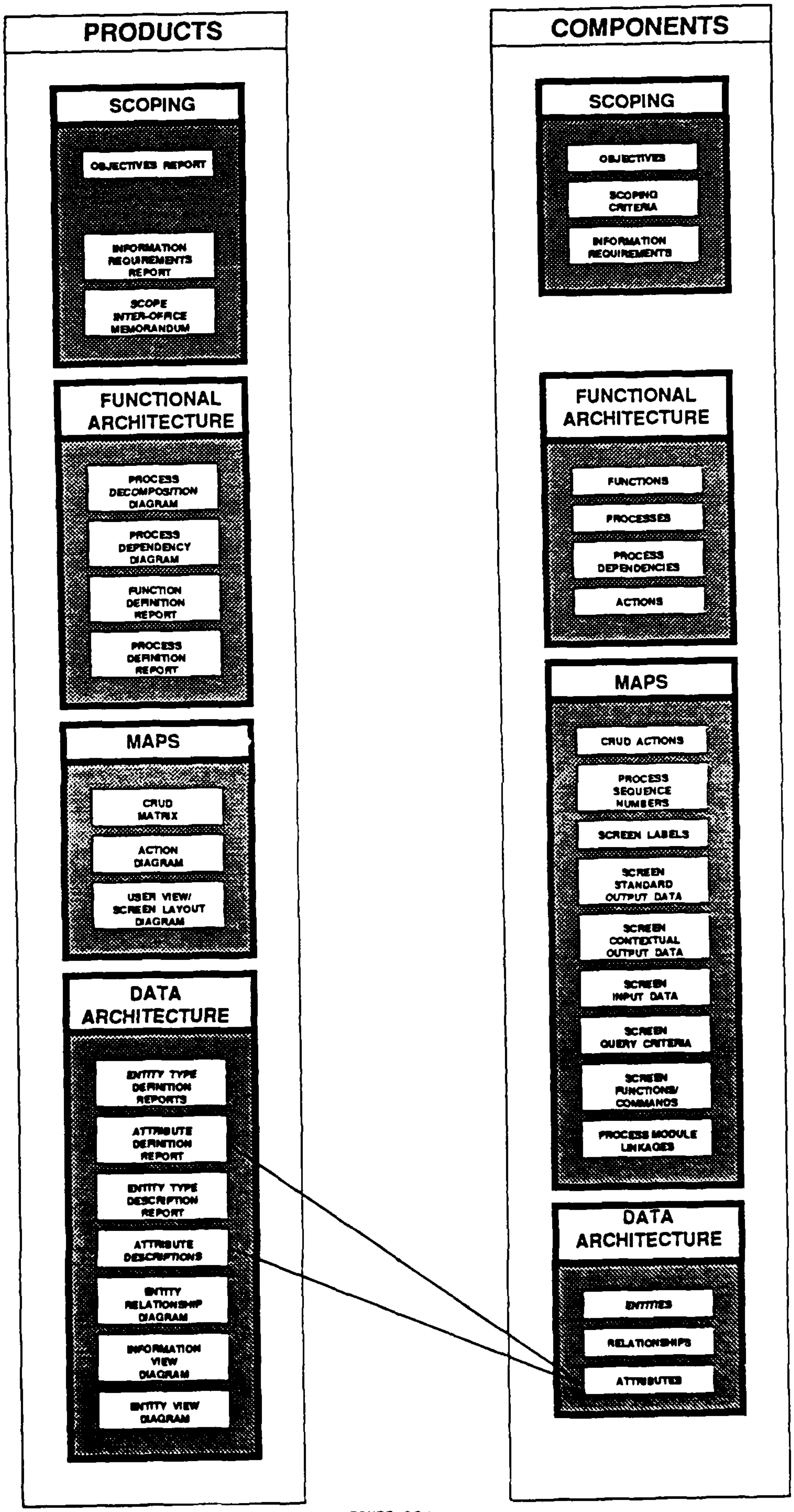


FIGURE 3.3-1
STEP OVERVIEW

3.3 DEVELOP ATTRIBUTE DESCRIPTIONS STEPS / PRODUCTS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. REVIEW ATTRIBUTE DEFINITION													R					
2. DETERMINE ATTRIBUTE SOURCE													R					
3. IDENTIFY OTHER ATTRIBUTE INFORMATION															C			

FIGURE 3.3-2
STEP PRODUCTS

COMPONENTS / 3.3 DEVELOP ATTRIBUTE DESCRIPTIONS STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. REVIEW ATTRIBUTE DEFINITION																			R
2. DETERMINE ATTRIBUTE SOURCE																			R
3. IDENTIFY OTHER ATTRIBUTE INFORMATION																			U

FIGURE 3.3-3
STEP COMPONENTS

3.3 DEVELOP ATTRIBUTE DESCRIPTIONS

3.3.1 PURPOSE

The purpose in this step is to fully describe each attribute. This includes revising definitions, identifying legal values, noting editing rules, identifying the best source for the data, noting the format, etc.

3.3.2 COMPONENTS/TERMS

3.3.2.1 Attribute

3.3.3 INPUT PRODUCTS

3.3.3.1 Attribute Reports (Reference Figure 2.1.7-3)

These reports will contain the brief definitions that were identified for each attribute during Global Analysis.

3.3.4 GENERAL PROCEDURES

3.3.4.1 Review Attribute Definitions

Determine if the definitions are correct and/or adequate. The definitions should follow the rules that are described in the RULES section of this procedure.

3.3.4.2 Determine Attribute Source

If an attribute is currently being used in an existing system, use that information as a start. If the attribute is new to the enterprise or a place holder for future use, identify it as such within the dictionary.

3.3.4.3 Identify Other Attribute Information

This includes identifying the format for the attribute (e.g. Alphanumeric), the required editing rules, and the legal values. All of this information is important for the physical implementation of this logical design.

3.3.5 OUTPUT PRODUCTS

3.3.5.1 Attribute Reports (Figure 3.3.7-1)

These will contain the complete descriptions for all attributes that were analyzed during this step.

3.3.6 RULES

3.3.6.1 Complete Sentences

All statements within a definition must be complete sentences.

3.3.6.2 Grammatically Correct

All statements within a definition must be grammatically correct.

3.3.6.3 Circular Statements

Circular statements are not permitted within a definition. A circular statement is one in which the component being defined is restated and used without qualifications or other explanation as the definition of the component being defined, e.g., an information requirement is a statement of a firm's requirements for information.

3.3.6.4 Objective and Quantitative Statements

Definitions should use only objective and quantitative statements, not qualitative or subjective statements.

3.3.6.5 Ambiguity

Definitions must be free of ambiguity so that they cannot be subject to interpretation which may have the effect of changing the definition.

3.3.6.6 Stand Alone

A definition must be capable of standing alone without the need for oral interpretation or explanation as to its meaning or intent.

3.3.6.7 Organizational Jargon

Definitions must be free of organizational jargon, idiom or other terms which may be known only to insiders.

3.3.6.8 Acronyms

Acronyms may be used within a definition. On first use, the full English meaning must be spelled out followed by the acronym itself.

3.3.6.9 Self Contained

Each definition must be self contained and not dependent upon the existence or content of another definition.

3.3.6.10 Personal Pronouns

Definitional statements should not begin with personal pronouns, e.g. It, They, His, Our, etc.

3.3.6.11 Context

Definitions must place the component within a specific context or must state each occurrence of context where appropriate.

3.3.6.12 Uniqueness

If the definition of the component is unique within DLA, or is thought to be different, it must be stated within the definition.

3.3.6.13 Contents

A definition may contain any statements necessary to convey an understanding of the component being defined, its context, its activities, its reason for existence or its reason for inclusion.

3.3.6.14 Length

A definition may be as long or as short as is necessary.

3.3.7 EXAMPLE

Figure 3.3.7-1 Attribute Report

Member Type
Member Name Attribute Name & Contents

CONTENT-ATTRIBUTE
CT-CNTR-CLOSE-DATE ALIAS
CATALOGUE
CONTENT ATTRIBUTE
CONTRACTOR PROFILE
DEFINITION
Date the contract was closed.
DESCRIPTION
Date of administrative record indicating final payment has been made.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
Contract Closed Date
SOURCE
Contracting officer.
DATA-STEWARD
DECIMAL-PLACES
DERIVATION-RULES
EDITING-RULES
DEMMODM - Mandatory attribute when contract is closed.
FORMAT
DATE
LEGAL-VALUES
LENGTH
8
RANGES
TRANSFORMATION
USAGE-RULES
SEE

CONTENT-ATTRIBUTE
CT-CNTR-DOLR-AMT ALIAS
CATALOGUE
CONTEXT ATTRIBUTE
CONTRACTOR PROFILE
DEFINITION
Estimated total dollar amount for the contract.
DESCRIPTION
Sum of all costs associated with a contract as of the date of award
and/or through the date of the final audit.
ENTRY-CONTENT-APPROVER-ORG
ENTRY-CONTENT-MAINTAINER-ORG
FULL-NAME
Contract Dollar Amount
SOURCE
Contracting officer.
DATA-STEWARD
DECIMAL-PLACES
2

Figure 3.3.7-1 Attribute Definitions

3.3 APPENDIX A - DETAILED IEW PROCEDURES

3.3 DEVELOP ATTRIBUTE DESCRIPTIONS

There are no IEW procedures for this section.

3.3 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

3.3 DEVELOP ATTRIBUTE DESCRIPTIONS

Reference APPENDIX D, GENERAL PC DICTIONARY PROCEDURES, for more details on how to ADD, EDIT, DELETE, COPY, RENAME, REPORT, or QUERY dictionary members.

3.3.1 PURPOSE

The purpose in these PC Dictionary detailed procedures is to explain how to capture and report the information that is gathered during the development of attribute descriptions.

3.3.2 COMPONENTS/TERMS

3.3.2.1 Attribute

3.3.2.2 Context Attribute

Context Attribute is the dictionary structure member type that is used to document each attribute that is non-decomposable. The names for context attributes begin with CT- in the dictionary.

3.3.2.3 Concatenated Attribute

Concatenated Attribute is the dictionary structure member type that is used to document each attribute that is decomposable into context attributes. The names for concatenated attributes begins with CC- in the dictionary.

3.3.3 INPUT PRODUCTS

3.3.3.1 Attribute Reports

Get a separate report for each set of attributes (context and/or concatenated) that are assigned to one entity type. This should be relatively easy to do since the attribute names begin with the entity type name, following the member type prefix. While in the MEMBER DEFINITION REPORT function, select all of the attributes that begin with one particular entity type name. Run the report. Repeat for each entity type.

3.3.4 GENERAL PROCEDURES

3.3.4.1 Review Attribute Definitions

EDIT any attribute whose definition needs modifying through the DATA ENTRY function. EDIT the 'definition' within each attribute member. SAVE the 'definition'.

3.3.4.2 Determine Attribute Source

After EDITing the definition, continue EDITing the attribute member by EDITing the 'source'. Enter the name of the existing system plus any

other text that helps describe the source. If the attribute is new/future, enter text that explains its origin. SAVE the 'source'.

3.3.4.3 Identify Other Attribute Information

While still editing the attribute member, EDIT the 'format'. Enter the proper format or select it from the keyword lookup table. Only the values in the lookup table are allowed. SAVE the 'format'.

EDIT the 'editing-rules' for each attribute. Enter any text that describes how the data being described is edited or should be edited. SAVE the 'editing-rules'.

EDIT the 'legal-values' for each attribute. Enter the code values that are allowed for the data being described plus the meaning for each code. SAVE the 'legal-values'.

SAVE the attribute member.

3.3.5 OUTPUT PRODUCTS

3.3.5.1 Attribute Reports

Repeat the steps described in the INPUT PRODUCTS section of this procedure.

4 NORMALIZATION

4.1 PURPOSE

Figure 4-1 Step Overview
Figure 4-2 Step Products
Figure 4-3 Step Components

4.2 COMPONENTS/TERMS

4.2.1 Attribute
4.2.2 Complex Associative Entity
4.2.3 Composite Foreign Key
4.2.4 Composite Primary Identifier
4.2.5 Entity (also called Entity Type)
4.2.6 Foreign key
4.2.7 Intelligent Identifier
4.2.8 Identifying attribute
4.2.9 Non-identifying attribute
4.2.10 Primary identifier
4.2.11 Relation
4.2.12 Subentity
4.2.13 Subtype

4.3 INPUT PRODUCTS

4.3.1 Entity names and definitions.
4.3.2 Relationship origins, destinations and cardinalities.
4.3.3 Attribute definitions.
4.3.4 Primary identifiers for entities.

4.4 GENERAL PROCEDURES

4.4.1 Entity becomes relation.
4.4.2 Foreign keys for relationship.
4.4.3 "Intelligent" identifiers.
4.4.4 Record initial data.
4.4.5 Record changes.

4.5 OUTPUT PRODUCTS

4.5.1 Relations are created.
4.5.2 Attributes are assigned membership in relations.
4.5.3 Notation of attributes as identifying and non-identifying.

4.6 QUALITY ASSURANCE RULES

4.6.1 Does one value of the primary identifier determain one value of the attribute?

4.6.2 For a relation having a compound primary identifier: Can one value of the attribute be determined by a combination of some parts of the primary identifier? (less than the entire identifier?)

4.6.3 Does one value of the attribute depend on the value of any attribute in any other relation?

4.7 EXAMPLE

4 Appendix A - Detailed IEW Procedures
4 Appendix B - Detailed PC Dictionary Procedures

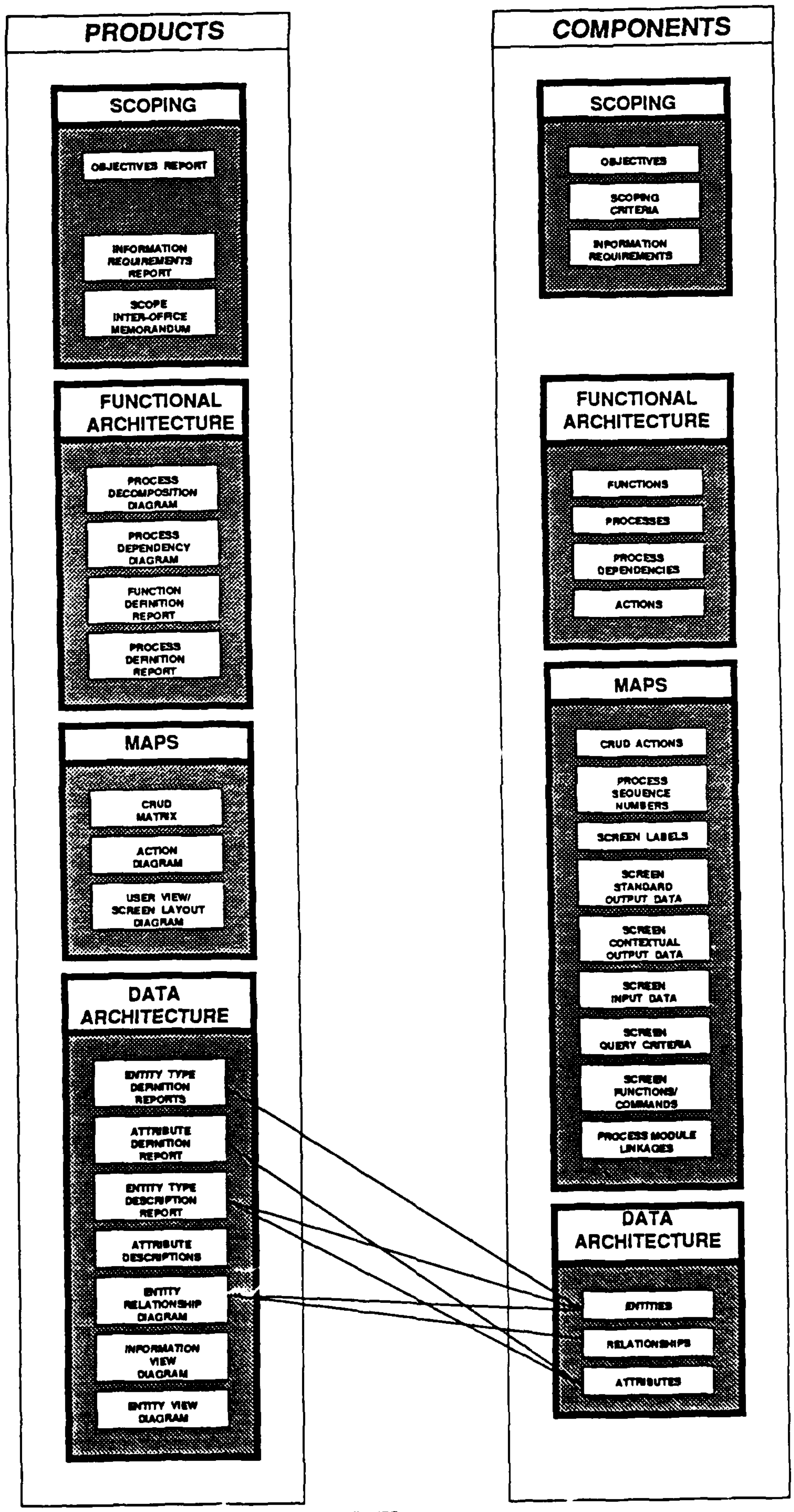


FIGURE 4-1
STEP OVERVIEW

PRODUCTS / 4. NORMALIZATION STEPS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTIO N DEFINITON REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITIO N REPORT	ENTITY TYP E DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATIO N VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. EACH ENTITY BECOMES A RELATION												R				R		
2. ADD FOREIGN KEYS FOR EACH RELATIONSHIP													CU	RU	CU			
3. INTELLIGENT IDENTIFIERS BECOME NON-IDENTIFYING ATTRIBUTES													U	U	U			
4. RECORD INITIAL RELATIONS AND ATTRIBUTES IN THE DATA DICTIONARY													U	U	U			
5. RECORD CAHNGES IN THE DATA DICTIONARY													U	U	U			

FIGURE 4-2
STEP PRODUCTS

COMPONENTS / 4. NORMALIZATION STEPS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. EACH ENTITY BECOMES A RELATION																	R	R	
2. ADD FOREIGN KEYS FOR EACH RELATIONSHIP																	RU	R	CU
3. INTELLIGENT IDENTIFIERS BECOME NON-IDENTIFYING ATTRIBUTES																			U
4. RECORD INITIAL RELATIONS AND ATTRIBUTES IN THE DATA DICTIONARY																		U	U
5. RECORD CAHNGES IN THE DATA DICTIONARY																		U	U

FIGURE 4-3
STEP COMPONENTS

4 NORMALIZATION

4.1 PURPOSE

Data normalization is a technique which takes individual data items or facts and places them into groups which describe very specifically a real or abstract object which exists in the business environment being modeled. In normalization, the attributed Entity Relationship model is examined in detail to ensure that each data group contains attributes whose values are absolutely determined by their respective primary identifier. In general the entity modeling process will have produced a substantially normalized model.

The normalization technique produces highly cohesive groups of data items, and thus yields a model of the business objects, concepts and facts which is very flexible. The normalized data groups eliminate the redundant representation of data by placing each fact in exactly one data group. (The only exception to this statement concerns the concept of foreign keys.) Another benefit that results from normalization is the elimination of synchronization anomalies in the updating of the data, since each fact resides in only one place in the model. This technique is based in mathematics and applies rigor to the data model. Still, in order to accomplish normalization, questions will be generated whose answers lie in the business community. Although the theory of normalization is exact, the actual products of applying the technique will vary according to the perspective and priorities of the business which the model will support.

The normalized relational model which is the product of this procedure constitutes the third of four levels of representation of the data model. The levels (conceptual, substantive logical, detailed logical and physical) each represent the information requirements of the enterprise with an increasingly finer degree of resolution.

4.2 COMPONENTS/TERMS

4.2.1 Attribute

A characteristic or quality of an entity that is of interest to the business. Attributes are members of entities or relations.

4.2.2 Complex Associative Entity

A meaningful "pairing" of instances of three or more entities. For example, the use of a SKILL by an EMPLOYEE on a PROJECT. These groups are scrutinized in taking the model from Fourth to Fifth Normal Form.

4.2.3 Composite Foreign Key

A foreign key that consists of more than one attribute.

4.2.4 Composite Primary Identifier

A primary identifier that consists of more than one attribute.

4.2.5 Entity.

Also called Entity Type.

4.2.6 Foreign key

A set of attributes in a relation which are identical to the primary identifier of another relation. The foreign key may or may not be part of the primary identifier in the relation where it is placed.

4.2.7 Intelligent Identifier

A primary identifier (usually one data item in existing systems) which contains meaning that characterizes its entity in one or more ways. Investigation often reveals multiple components in this "item". These components may be interpreted in multiple ways over time and across the enterprise, significantly compromising the potential for flexible data processing systems. An example of an intelligent identifier is an insurance policy number where the first three characters represent the type of policy (BOP123456 is a Business Owner's Policy, etc.).

4.2.8 Identifying attribute

An attribute which is all or part of a primary identifier.

4.2.9 Non-identifying attribute

An attribute which is not all or part of a primary identifier.

4.2.10 Primary identifier

An attribute or a combination of attributes whose values uniquely identify an instance of an entity or relation. An entity or relation may have more than one candidate identifier.

4.2.11 Relation

A two-dimensional representation of data items. A relation has a name, a primary identifier and a set of non-identifying attributes. The attributes can be thought of as column names, and actual instances of the relation may be thought of as rows in the relation.

4.2.12 Subentity

An entity which has a compound primary identifier, at least one part of which is not a foreign key or foreign key component. Also called a "child" or "dependent" entity.

4.2.13 Subtype

An entity whose occurrences are a subset of those of another entity (the supertype). The occurrences of the subtype and its associated supertype represent exactly the same instance of an object or concept in the real world, but the subtype has additional characteristics and/or relationships of interest. A subtype and its supertype always have identical prime identifiers.

4.3 INPUT PRODUCTS

The only input to the data normalization process is the attributed logical entity relationship model. The information specifically used by normalization is:

4.3.1 Entity names and definitions.

4.3.2 Relationship origins, destinations and cardinalities.

4.3.3 Attribute definitions.

4.3.4 Primary identifiers for entities.

4.4 GENERAL PROCEDURES

4.4.1 Each entity becomes a relation.

Each primary identifier of an entity becomes a primary identifier of a relation. Each attribute of an entity becomes an attribute of its corresponding relation.

4.4.2 Foreign keys.

Add foreign keys for each relationship.

4.4.3 "Intelligent" identifiers.

"Intelligent" identifiers become non-identifying attributes, and single attribute primary identifiers are created.

4.4.4 Record initial data.

Record the initial relations and attributes in the data dictionary.

4.4.5 Record changes.

The following steps place each non-identifying attribute into the relation upon whose primary key the attribute completely depends for a single occurrence of its value. Record any changes introduced in these steps in the data dictionary.

For each relation,

> For each non-identifying attribute in the relation,
>
> > If a given value for the primary identifier of the relation determines only one value for the attribute, then
> >
> > > The attribute is placed according to First Normal Form. Otherwise, if a given value for the primary identifier of the relation permits more than one value for the attribute, or if a value of the primary identifier in no way determines the value of the attribute, then
> > >
> > > If a relation exists whose primary identifier can determine only one value for the attribute, then
> > >
> > > > Move the attribute into that relation.
> > >
> > > Otherwise,
> > >
> > > > Create a new relation with a primary identifier which can determine only one value for the attribute.
> > > >
> > > > Move the attribute into that relation.

If a given value for the entire primary identifier of the relation determines only one value for the attribute, then

The attribute is placed according to Second Normal Form.

Otherwise, if any part of the primary identifier of the relation is not required to determine one value of the attribute, then

If a relation exists whose primary identifier can determine only one value for the attribute, then

Move the attribute into that relation.

Otherwise,

Create a new relation with a primary identifier consisting only of those identifying attributes which together determine only one value for the attribute being placed.

Move the attribute into that relation.

For every other non-identifying attribute (say, A2) in the relation,

If a value of attribute A2 has no effect on the value of the attribute being placed, then

The attribute is placed according to Third Normal Form as regards attribute A2.

Otherwise, if a given value of attribute A2 determines only one value of the attribute being placed, then

Create a new relation with attribute A2 as the primary identifier.

Move into the new relation the attribute being placed.

For each combination of attributes (say, P1) in the primary identifier of a relation with three or more identifying attributes,

For every other combination of identifying attributes (say, P2),

If the value of P2 has no effect on the value of P1, then

The relation adheres to Fourth Normal Form as

regards the combinations of identifying attributes P1 and P2.

Otherwise, if a value of combination P2 has no effect on the value of P1, then

Create a new relation with P1 as the primary identifier.

Create a new relation with P2 as the primary identifier.

Move the non-identifying attributes from the original relation into one of the new relations according to the rules above.

4.5 OUTPUT PRODUCTS

Data normalization produces the following objects and characteristics:

4.5.1 Relations are created.

4.5.2 Attributes are assigned membership in relations.

4.5.3 Notation of attributes as identifying and non-identifying.

4.6 QUALITY ASSURANCE RULES

The correctness of the normalized relations may be verified by applying the following tests to each non-identifying attribute of each relation:

4.6.1 Does one value of the primary identifier determine one value of the attribute?

An affirmative response is required to confirm normalization.

4.6.2 For a relation having a compound primary identifier: Can one value of the attribute be determined by a combination of some parts of the primary identifier? (less than the entire identifier?)

A negative response is required to confirm normalization.

4.6.3 Does one value of the attribute depend on the value of any attribute in any other relation?

A negative response is required to confirm normalization.

4.7 EXAMPLE

This section illustrates by example the normalization process. The example begins with a single entity called EVALUATION which assesses an employee's performance of a particular skill while working on a particular project. In a real modeling circumstance, most of the entities corresponding to the second normal form relations (2NF) would probably be identified prior to beginning normalization.

In this example, the boldface words are the names of the relations; capitalized words are attributes in primary identifiers; lowercase words are non-identifying attributes; and "(F)" following an attribute indicates a part of a foreign key.

We begin with an unnormalized relation which has the same attributes as the EVALUATION entity.

Unnormalized
EVALUATION
EMPLOYEE
PROJECT
SKILL
rating
employee name
location id
project start date
assignment start date
phone number

To arrive at the First Normal Form (1NF) relation(s), we ask if a given value of the primary identifier (EMPLOYEE ID + PROJECT ID + SKILL ID) determines only one value for each non-identifying attribute. That is, "Does employee #100 using the budgeting skill on project ABC have exactly one rating?" Then, "Does employee #100 using the budgeting skill on project ABC have exactly one employee name?" And so the analysis continues for all the attributes. In our example, there is only one 1NF relation, and it is identical to the unnormalized relation.

1NF
EVALUATION
EMPLOYEE
PROJECT
SKILL ID
rating
employee name
project start date
assignment start date
location id
phone number

To take the model to Second Normal Form (2NF), we ask if any non-identifying attribute in the relation depends on only part of the primary identifier for its value. Several of the attributes in this example only depend on part of the primary identifier of EVALUATION

for their value. For each of these we create a new relation with an identifier that is just adequate to determine the attribute's value. Three more 2NF relations were created and the appropriate attributes were moved into those relations.

2NF

EVALUATION
EMPLOYEE (F)
PROJECT
SKILL ID
rating

PROJECT
PROJECT
project start date

EMPLOYEE
EMPLOYEE
employee name

ASSIGNMENT
EMPLOYEE
PROJECT
location id
phone number
assignment start date

Third Normal Form (3NF) relations are produced by examining non-identifying attributes for any dependence they may have on attributes other than the primary identifier attributes of their relation. In our example, the business representatives tell us that each location has one phone number; phone number completely depends on location id from the point of view of our example business. A new relation, LOCATION, was created to represent this fact. At this point all the relations conform to Third Normal Form and satisfy the Quality Assurance Rules 1,2 and 3 in section 4.6.

3NF

EVALUATION
EMPLOYEE (F)
PROJECT (F)
SKILL ID
rating

PROJECT
PROJECT
start date

EMPLOYEE
EMPLOYEE
employee name

ASSIGNMENT
EMPLOYEE (F)
PROJECT (F)

assignment start date
location id (F)

LOCATION
LOCATION ID
phone number

To exist in Fourth Normal Form, any part of a primary identifier which can have values completely independent of the other parts of the primary identifier must exist as a primary identifier itself in the model. In a sense, this process asks if any entities have been overlooked. If entity analysis has been thorough, this step will typically produce no changes. In our example, skill id is independent of the other parts of the primary identifier of the EVALUATION relation, and so a new relation, SKILL, is created.

4NF

EVALUATION
EMPLOYEE (F)
PROJECT (F)
SKILL ID (F)
rating

PROJECT
PROJECT
project start date

EMPLOYEE
EMPLOYEE
employee name

ASSIGNMENT
EMPLOYEE (F)
PROJECT (F)
assignment start date
location id (F)

LOCATION
LOCATION ID
phone number

SKILL
SKILL ID
skill description

Performing the analysis to produce a model in Fifth Normal Form (5NF) can often reveal subtleties that were not captured during entity modeling. This step examines relations having compound primary identifiers consisting of three or more attributes. We ask if one instance of the relation actually represents more than one independent fact about the business. In our example, the EVALUATION relation is the only place in the model where a particular skill is paired with a particular project, and this exists only with regard to a particular employee's performance evaluation. However, upon further discussion with the business representatives we discover that during the

initiation of a project, a profile of the skills required by the project is prepared and used in estimating the project and future projects. Similarly, our business maintains a record of which employees possess which skills. The dependent date attributes also become apparent. So two new relations are created to represent these two independent business concepts, and their attributes are added to the model.

5NF

EVALUATION
EMPLOYEE (F)
PROJECT (F)
SKILL ID (F)
rating

PROJECT
PROJECT
project start date

EMPLOYEE
EMPLOYEE
employee name

ASSIGNMENT
EMPLOYEE (F)
PROJECT (F)
assignment start date
location id (F)

LOCATION
LOCATION ID
phone number

SKILL
SKILL ID
skill description

SKILL REQUIREMENT
SKILL ID (F)
PROJECT (F)
Date needed

AVAILABLE SKILL
SKILL ID (F)
EMPLOYEE (F)
Date Available

4 APPENDIX A - DETAILED IEW PROCEDURES

4 NORMALIZATION

4.1 PURPOSE (IEW)

The purpose of these procedures is to produce a relational database design from an attributed entity model. Normalized relations are the result of executing these procedures.

These procedures employee the IEW Relational Translator to perform the normalization process.

4.2 COMPONENTS/TERMS

N/A

4.3 INPUT PRODUCTS (IEW)

Logon to the IEW Analysis Workstation.

Pull down the "Display" menu and select "Encyclopedia List".

Select the encyclopedia to be opened.

Pull down the "Edit" menu and select "Open".

Close the window.

Pull down the "Display" menu and select "Entity Diagram".

Select "Subject Area" and "Find".

Select the subject area to be used for normalization and select "Proceed".

Verify that this is the subject area from which the relational database is to be produced.

4.4 PROCEDURES (IEW)

These procedures begin with the desired subject area entity diagram window open and active.

4.4.1 - 4.4.4 IEW procedures are not applicable.

4.4.5

Pull down the "Display" menu and select "Relational Database Design".

Enter the name of the database to be created and select "Create".

Select "Foreign keys" and "Only where necessary", then "Proceed".

When more than one possibility exists for a unique identifier of a relation, IEW will present a window listing the choices.

Select the "IDNTF" attribute if present. Otherwise, select the "NBR" attribute. Then select "Proceed".

If neither "IDNTF" nor "NBR" exist, select the "CD" attribute.

The Relational Translator will generate the relations for the selected subject area.

Return to the manual procedures (Step 4.4.5.1.2) and record any changes to the relations by editing the relation.

4.5 OUTPUT PRODUCTS (IEW)

The steps below view the relations produced by the Relational Translator.

Logon to the IEW Design Workstation.

Pull down the "Display" menu and select "Encyclopedia List".

Select the encyclopedia to be opened.

Pull down the "Edit" menu and select "Open".

Close the window.

Pull down the "Display" menu and select "Database Structure".

Select "Relation" and "Find".

Select the relation to be viewed and select "Proceed".

4 APPENDIX B - DETAILED PC DICTIONARY PROCEDURES

4 NORMALIZATION

There are no PC Dictionary procedures for this section at this time. Decisions need to be made as to what should be stored in PC Dictionary due to the normalization activity. At this time, a relation member type is being considered. Each relation will contain at a minimum the key plus its functionally dependent attributes.

5 DEVELOP USER VIEWS

5.1 PURPOSE

- Figure 5.1-1 Step Overview
- Figure 5.1-2 Step Products
- Figure 5.1-3 Step Components

5.2 COMPONENTS/TERMS

- 5.2.1 SCREEN LAYOUT
  - 5.2.1.1 Labels
  - 5.2.1.2 Data
    - 5.2.1.2.1 Output Data
      - 5.2.1.2.1.1 Standard Output Data
      - 5.2.1.2.1.2 Contextual Output Data
    - 5.2.1.2.2 Input Data
  - 5.2.1.3 Query Criteria
  - 5.2.1.4 Functions/Commands
- 5.2.2 DATA VIEWS
- 5.2.3 PROCESS MODULE LINKAGES

5.3 INPUT PRODUCTS

- 5.3.1 DATABASE
- 5.3.2 ACTION DIAGRAMS
- 5.3.3 MODULE ACTION DIAGRAMS

5.4 GENERAL PROCEDURES

- 5.4.1 IDENTIFY AUTOMATION TARGETS IN ACTION DIAGRAMS
- 5.4.2 REVIEW INFORMATION VIEWS FROM TARGETED ACTIONS
- 5.4.3 DESIGN SCREEN LAYOUTS
- 5.4.4 MAP SCREEN DATA TO THE DATABASE
- 5.4.5 MAP SCREEN DATA TO MODULES

5.5 OUTPUT PRODUCTS

- 5.5.1 Screen Layouts

5.6 RULES

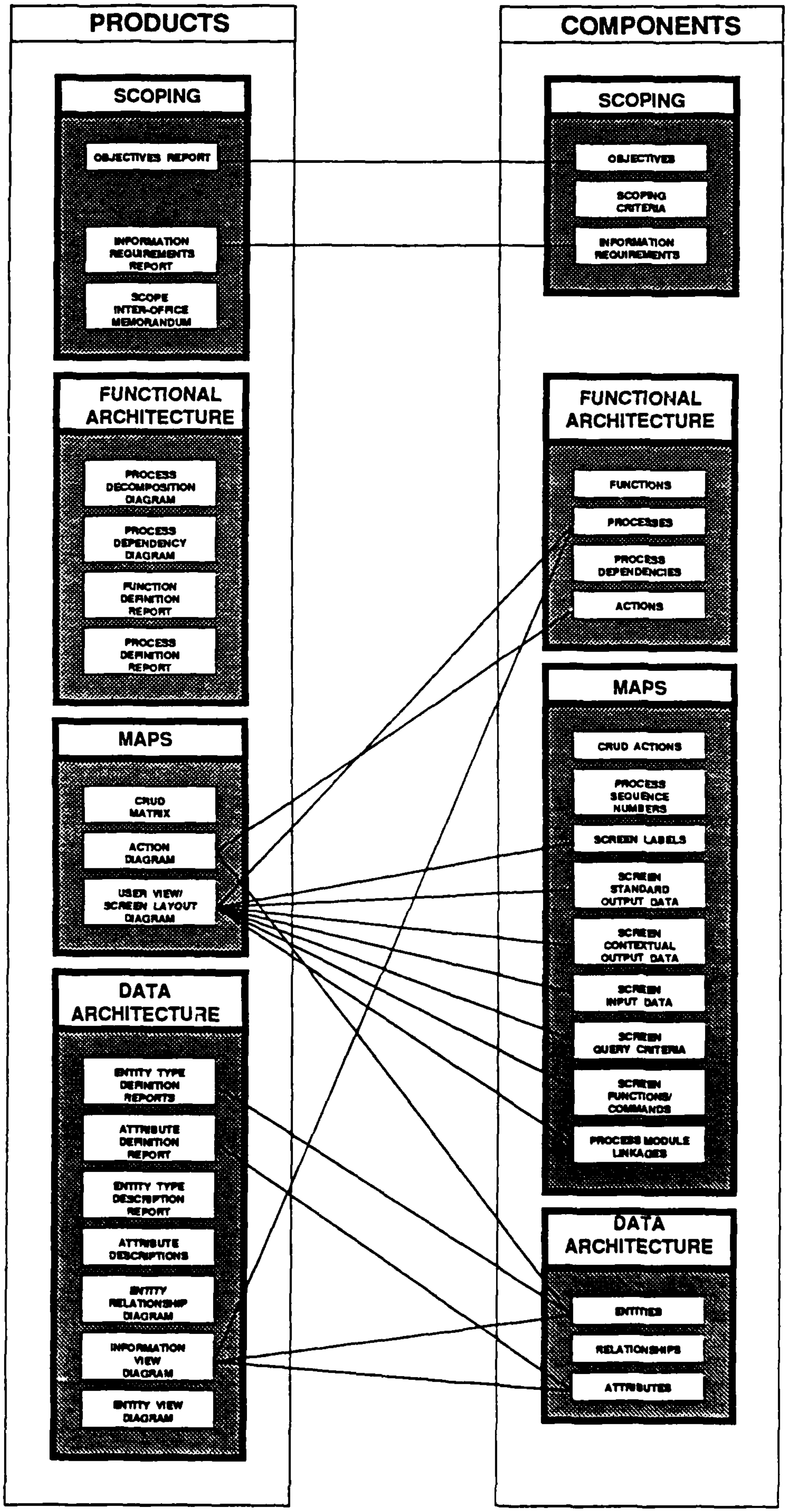


FIGURE 5-1
STEP OVERVIEW

5. DEVELOP USER VIEWS — STEPS / PRODUCTS	SCOPING				FUNCTIONAL ARCHITECTURE				MAPS			DATA ARCHITECTURE						
	OBJECTIVES REPORT	INFORMATION REQUIREMENTS REPORT	SCOPE INTER-OFFICE MEMORANDUM		PROCESS DECOMPOSITION DIAGRAM	PROCESS DEPENDENCY DIAGRAM	FUNCTION DEFINITION REPORT	PROCESS DEFINITION REPORT	CRUD MATRIX	ACTION DIAGRAM	USER VIEW/ SCREEN LAYOUT DIAGRAM	ENTITY TYPE DEFINITION REPORTS	ATTRIBUTE DEFINITION REPORT	ENTITY TYPE DESCRIPTION REPORT	ATTRIBUTE DESCRIPTIONS	ENTITY RELATIONSHIP DIAGRAM	INFORMATION VIEW DIAGRAM	ENTITY VIEW DIAGRAM
1. IDENTIFY AUTOMATION TARGETS IN ACTION DIAGRAMS	R	R								R								
2. REVIEW INFORMATION VIEWS FROM TARGETED ACTIONS																	R	
3. DESIGN SCREEN LAYOUTS											C							
4. MAP SCREEN DATA TO THE DATABASE											U	U	U					
5. MAP SCREEN DATA TO MODULES										U	CU							

FIGURE 5-2
STEP PRODUCTS

5. DEVELOP USER VIEWS STEPS / COMPONENTS	SCOPING			FUNCTIONAL ARCHITECTURE				MAPS									DATA ARCH		
	OBJECTIVES	SCOPING CRITERIA	INFORMATION REQUIREMENTS	FUNCTIONS	PROCESSES	PROCESS DEPENDENCIES	ACTIONS	CRUD ACTIONS	PROCESS SEQUENCE NUMBERS	SCREEN LABELS	SCREEN STANDARD OUTPUT DATA	SCREEN CONTEXTUAL OUTPUT DATA	SCREEN INPUT DATA	SCREEN FUNCTIONS/ COMMANDS	PROCESS MODULE LINKAGES	SCREEN QUERY CRITERIA	ENTITIES	RELATIONSHIPS	ATTRIBUTES
1. IDENTIFY AUTOMATION TARGETS IN ACTION DIAGRAMS	R	R	R				R												
2. REVIEW INFORMATION VIEWS FROM TARGETED ACTIONS																	R		R
3. DESIGN SCREEN LAYOUTS										C	C	C	C	C		C			
4. MAP SCREEN DATA TO THE DATABASE											U	U	U				U		U
5. MAP SCREEN DATA TO MODULES							U				U	U	U		C				

FIGURE 5-3
STEP COMPONENTS

5 DEVELOP USER VIEWS

5.1 PURPOSE

User Views (UVs) constitute an essential component in the creation of a viable system. Each UV provides user access to one or more system processes, and to one or more views of the database. To the user, the entire collective set of UVs is the system, as access to all system functionality and data are provided to the user through the User Views.

A User View is at once both a discrete object and a junction of other, modeled objects. By itself, a UV may be evaluated as to its form, content and usefulness. A UV provides specific information designed to address one or more explicitly defined information needs. As a junction, a UV may be evaluated as part of one or more chains of sequential user processes, or as the point at which the data, process, and functional architectures meet to address one or more system requirements.

5.2 COMPONENTS/TERMS

5.2.1 SCREEN LAYOUT

A screen is a collection of graphic and textual objects which together form a picture that may be displayed on a terminal or printed. Each of the objects on a screen constitutes one or more of the following types of objects

5.2.1.1 Labels

Any portion of the screen which is fixed such that it does not change based upon the value(s) of data may be considered a label. Column and row headers (e.g. such as a month at the top of a column) and individual data descriptors (e.g. "DATE:") are classic examples of labels. However, fixed graphic objects, such as the axis of a graph, are also considered labels.

5.2.1.2 Data

Any portion of the screen which changes can be considered data.

5.2.1.2.1 Output Data

Output data is that portion of the screen whose appearance is based upon some set of known criteria, and is produced as the result of decisions and actions by the linked process module(s).

5.2.1.2.1.1 Standard Output Data

Standard output data is that output data which is consistent within some context. For example, if every screen shows the current date, then that date object on the screen can be considered as standard output data for the set of screens. If every screen showing employee history of some kind displays the individual employee's id in the upper right hand corner, then that employee id object can be considered as standard output data for the set of employee screens. Thus, it can be seen that there exist levels of standardization for standard output data that are dependent upon the size and scope of the set within which that object is standard.

5.2.1.2.1.2 Contextual Output Data

Contextual output data differs from standard output data only in that its appearance is standard only for a singular, well-defined context (i.e., a set of one).

5.2.1.2.2 Input Data

Input data differs from output data in that it is produced as the result of decisions and actions performed by the user, as opposed to the linked process modules. Like all screen objects, input data can take a textual, graphics, or logical form.

5.2.1.3 Query Criteria

Query criteria is a screen object which constitutes a special form of data (either input or output), and represents the informational basis used to retrieve information from the database. For example, A screen that displays a contractor's address and phone number may provide a blank object in which the user can enter the cage code of a particular contractor. That cage code is then used in order to retrieve the desired information for the given contractor.

5.2.1.4 Functions/Commands

Functions and commands are special forms of input data which affect the path of process module logic and/or the display of information on the screen. Functions and commands may be local, in that they affect the way output data is displayed in the current User View, for example, or global, an example of which would be a command to exit one UV and execute another.

5.2.2 DATA VIEWS

A data view is a representation of a portion of an IEW Database. Specifically, that portion of an IEW Database which contains data structures used ('seen') by a given User View. In other words, the database information used by a given UV is described as a Data View, which maps individual data structures in the database to individual data objects on the screen.

5.2.3 PROCESS MODULE LINKAGES

A Process Module Link is a logical association between a screen data object and a particular process module. The given process module either uses or produces the associated datum.

5.3 INPUT PRODUCTS

5.3.1 DATABASE

In this context, database refers to a relational schema (minimally in first normal form) composed of data structures, each of which constitutes a repository for a particular type of datum.

5.3.2 ACTION DIAGRAMS

Action Diagrams (ADs) are used in order to determine which individual actions or groups of process actions embody in-scope functional requirements. By analyzing ADs, one can identify where within the process architecture a User View may be placed such that one or more functional requirements are addressed. The portion of the AD thus identified becomes the basis for a Module Action Diagram, which is discussed below.

5.3.3 MODULE ACTION DIAGRAMS

Module Action Diagrams (MADs) represent detailed program logic in graphic format. MADs describe the points in the system which directly interact with User Views through the individual screen data objects.

5.4 GENERAL PROCEDURES

5.4.1 IDENTIFY AUTOMATION TARGETS IN ACTION DIAGRAMS

Action Diagrams are reviewed by the team in order to identify actions or groups of actions which represent in-scope functional requirements. These are noted. After the first pass, the 'targets' are summarized and evaluated as a whole in an attempt to:

- identify duplicate targets (actions or groups of actions which exist in more than one context)
- continue the application of project scoping criteria
- evaluate the priority of individual targets respective to all targets identified

5.4.2 REVIEW INFORMATION VIEWS FROM TARGETED ACTIONS

The information view for each AD is then reviewed to ensure that the data necessary to support the embedded targets is present.

5.4.3 DESIGN SCREEN LAYOUTS

Functional experts then review each identified target and design the screen or screens that address its information requirements.

5.4.4 MAP SCREEN DATA TO THE DATABASE

Each screen data object is associated with a specific data structure within the database, if appropriate. There are instances where this would not be appropriate. For example, TODAY'S DATE may have no associated structure in the database.

5.4.5 MAP SCREEN DATA TO MODULES

Each screen data object (or alternatively, each screen) is associated with a particular MAD, as appropriate. There are instances where this would not be appropriate, again, as in the case of TODAY'S DATE.

5.5 OUTPUT PRODUCTS

5.5.1 Screen Layouts

The output of the User View development will be in the form of IEW Screen Layout objects, as defined in Section 5.2.1. See Figure 5.7.1.

5.6 RULES

5.6.1 Maintain Static Data Model

The Development of User Views should not be allowed to alter or modify the current version of the data model. The information contained within a User View must either exist in the current data model, or be derived from information that exists in the current data model.

5.6.2 Process Driven

The User Views that are defined must be derived from requirements identified within the process architecture (from the Action Diagrams). The purpose of the User Views is to support the sequential processes that have been described in great detail.

5.7 EXAMPLE

Figure 5.7.1 Screen Layout

LEGAL ENTITY SUMMARY - LEGENSUM

CAGE-CD ASSN-CAGE-CD NAME

ELGBY-STAT-INDCT STAT-CD OWNSP-CD

NBR BUSNS-SIZE TAX-ID-NBR

BUSNS-ADRS-TEXT

MALNG-ADRS-TEXT

NOVTN-STAT-CD DISCL-STMT-STAT-INDCT

DB-RATE-CD DB-RATE-DATE

PARNT-IDNTF MNRTY-INDCT DISAD-INDCT WOMAN-OWNSP-INDCT

BKRCY-CD ALERT-TYPE-CD

AWARD-NAME AWARD-

RATNL-TEXT DATE

Figure 5.7.1 Screen Layout

5 APPENDIX A - DETAILED IEW PROCEDURES

5 DEVELOP USER VIEWS

5.1 PURPOSE

5.2 COMPONENTS/TERMS

5.3 INPUT PRODUCTS

5.4 GENERAL PROCEDURES

5.4.1 IDENTIFY AUTOMATION TARGETS IN ACTION DIAGRAMS

5.4.1.1 LOGON TO ANALYSIS WORKBENCH
5.4.1.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'ACTION DIAGRAM' OPTION
5.4.1.3 CLICK ON THE 'FIND' RADIO BUTTON
5.4.1.4 SEARCH FOR THE NEXT ACTION DIAGRAM TO BE REVIEWED AND SELECT IT
5.4.1.5 CLICK ON THE 'PROCEED' RADIO BUTTON

5.4.2 REVIEW INFORMATION VIEWS FROM TARGETED ACTIONS

5.4.2.1 LOGON TO ANALYSIS WORKBENCH
5.4.2.2 PULL DOWN THE 'OBJECT LIST' OPTION
5.4.2.3 CLICK ON THE 'DESELECT ALL' RADIO BUTTON
5.4.2.4 SELECT 'SEQUENTIAL PROCESSES' FROM THE LIST PROVIDED
5.4.2.5 CLICK ON THE 'PROCEED' RADIO BUTTON
5.4.2.6 SELECT THE SEQUENTIAL PROCESS YOU WISH TO REVIEW
5.4.2.7 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'ENTITY DIAGRAM' OPTION

5.4.3 DESIGN SCREEN LAYOUTS

5.4.3.1 LOGON TO THE ANALYSIS WORKBENCH
5.4.3.2 PULL DOWN THE 'DISPLAY' MENU AND SELECT THE 'SCREEN LAYOUT' OPTION
5.4.3.3 CLICK ON THE 'FIND' RADIO BUTTON
5.4.3.4 IF YOU SEE THE SCREEN LAYOUT YOU WANT, SELECT IT AND CLICK ON THE 'PROCEED' RADIO BUTTON...ELSE...ENTER THE NAME OF THE SCREEN LAYOUT YOU WISH TO CREATE AND SELECT THE 'CREATE' RADIO BUTTON

5.4.4 MAP SCREEN DATA TO THE DATABASE

5.4.5 MAP SCREEN DATA TO MODULES

5 APPENDIX B DETAILED - PC DICTIONARY PROCEDURES

5 DEVELOP USER VIEWS

There are no PC Dictionary procedures for this section at this time. Decisions need to be made as to what should be stored in PC DICTIONARY due to the userview activity.

APPENDIX A - GLOSSARY OF TERMS

Action Diagram: A graphic and textual depiction of the detailed logic and sequential actions which occur when a process is performed.

Architecture: A structured representation of the component parts of a complex system and their interrelationships.

Attribute: A characteristic of an entity or a relationship.

Attribute Value: A quantitative or descriptive characteristic of an entity instance.

Baseline Architecture: The current structure of component parts of an automated information system which exists to accomplish a specific business purpose.

Business Area: A logical grouping of high cohesive functions within a business or organization.

Business Area Analysis: Detailed analysis of a selected business area to define logical data and functional models in preparation for business system design.

Business Area Functional Model: The product which represents a more detailed description of a portion of the Functional Architecture at the Logical level.

Cardinality: A property of a relationship that defines whether an occurrence of an entity can relate to only one occurrence of the related entity, or to many occurrences of the related entity.

Classifying Entity Type: An entity type whose single purpose is to classify or categorize Substantive Entity Types or Substantive Sub-entity Types.

Classifying ERD: An entity relationship diagram (ERD) which contains one substantive entity type only; all other objects are classifying objects relevant to the classification of the single substantive entity type in the ERD.

Classifying Relationship: A relationship between a classifying entity type or classifying sub-entity type and any other entity type.

Classifying Sub-Entity Type: A classifying entity type which depends on the existence of a classifying entity type or on another classifying sub-entity type.

Computer Aided Systems Engineering (CASE): The automation of systems engineering using automated tools which aid in the development of consistent, complete, and integrated data and process models.

Conceptual Functional Architecture: The highest level of the Functional Architecture. Consists of a structured representative of functions for the entire enterprise.

Conceptual Data Architecture: The highest level of the Data Architeclture. Consists of a structured representation of the entities and relationships of the entire enterprise.

Corporate Data Dictionary (CDD): A repository of data about an organization's significant information and information processing resources, and a directory of the locations and relationships of data internal and external to the directory.

Constraint: A concept that represents a force which can prevent or limit success.

Critical Success Factor (CSF): A concept that states a factor vital to the success of an enterprise, a thing that must be done well if the enterprise is to succeed.

Data: A noncontextual representation of facts, concepts, and instructions in a defined format and structure which permits processing by men or machines to derive information. Representations of people, places, things, concepts, events or activities in a defined format and structure from which information may be derived.

Data Administration: The management and control of information as a corporate asset.

Data Architecture: The structured representation of an enterprise's information requirements of the entire enterprise, including entities, relationships and attributes.

Data Flows: Information about one or more entities which flows into and out of external agents to and from processes. Data flows are only associated with external agents and do not flow between processes.

DLA Enterprise Model: The representation in Entity Relationship diagram form of the global architecture of DLA that describes the structure of the enterprise with respect to its business direction, forces that influence the business, and its operation.

Enabler: A concept that represents a force which facilitates or promotes success.

Enterprise Model: A formal, orderly, automated representation of the business requirements of an organization, and the information which is required to support those business requirements.

Entity: A person, place, thing, event, object, or concept about which an enterprise requires information. An entity-type represents all of the occurrences or instances of a given type. Entity-types, not entities, are represented in a data architecture. Entity-types may be "substantive" or classifying," and may be decomposable into subentity-types.

Entity Relationship Diagram (ERD): A graphic model which portrays entities, relationships, and relationship properties (optionality and cardinality).

Entity-Type Description: An Entity-Type Description is an IEW report which displays a view of an entity-type's characteristics relative to the content in which the view was created. The relevant attributes describing the entity-type, as well as the relevant relationships between the given entity-type and other entity-types, are included in the report.

Exhaustiveness: The requirement that components (entities, functions, processes, procedures) at the same level completely decompose the parent component.

External Agents: Organizations which are external to the enterprise.

Facility: A place which exists as a real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land.

Function: A major, high-level activity of an enterprise, comprising a broad group of processes that together completely support one aspect of furthering a mission of an enterprise.

Functional Architecture: The structured representation of an enterprise's business activities (functions, processes, and procedures).

Goal: A concept that states an end of purpose toward which an endeavor is directed.

Global Analysis: A phase of analysis which expands vertically the functional and data architectures.

Global Architecture: A structured representation of the links between an organization's business requirements and information requirements, represented by an enterprise model.

IE Approach Component: An element of an IE Approach Product.

IE Approach Product: The result of DLA's Information Engineering Approach analyses. Consists of components and may be portrayed by one or many subproducts.

IE Approach Subproduct: A specific diagramming or documentation technique for portraying an IE Approach Product.

Implementation Platform: Specific hardware, software, communications, and other physical items used in producing and operating a system.

Information: Data (text, figures, number, etc.) in the context of meaning.

Information Architecture: A structured representation of the information resources of the organization as manifested in its data, activities, and the interaction between and among that data and those actions. The Information Architecture consists of two subarchitectures: the Data Architecture and the Functional Architecture - and the mapping between the two.

Information Engineering (IE): A methodology that creates a corporatewide architectural framework for information systems containing an integrated set of formal techniques in which business models, data models, and process models are built up in a comprehensive knowledge base and are used to create and maintain the information systems.

Information Requirement (IR): The functional users' way of classifying meaningful data which they need to perform a business function, monitor critical success factors, or achieve a measurable objective.

Information Requirements List: The product which documents the information requirements and their relationships identified in the Enterprise Model.

Life Cycle Rule: The criteria for decomposing groups of activities at the same level by identifying them according to the sequences in which a function or process must be executed.

Logical Data Architecture: A detailed structure derived from the Conceptual Data Architecture. Its components are entities, their relationships to each other and the properties of those relationships and their attributes. The Logical Data Architecture delineates the real or user perceived roles, aliases and subsets of the conceptual entities.

Logical Functional Architecture: The detailed structuring of one business area from the Conceptual Functional Architecture. Its components are processes decomposed to the level of sequential processes, process dependencies, and process actions relating processes to data components.

Mapping: The network of relationships between the components of the data architecture and business system architecture.

Mission: A concept that embodies the thing to be done, together with the purpose, in explanation or justification for the existence of the organization.

Mutual Exclusivity: The requirement that components (entities, attributes, functions, processes, procedures, relationships) at the same level do not overlap.

Objective: A concept that represents something aimed at or striven for in an endeavor.

Optionality: The property of a relationship which express whether or not a instance of a relationship must occur given the occurrence of one of the related entities.

Organization: A concept that represents a subdivision of an enterprise, partitioned along human resource lines, that exists to perform one or more process.

Physical Business System Architecture: The translation of a particular Logical Functional Architecture into procedures the system will implement.

Physical Data Architecture: The translation of the Logical Data Architecture into the actual data base management system language that will be implemented.

Physical Information Architecture: The structure of actual business system and data base designs which transform logical designs into detailed specifications.

Physical Level: The structure of data or procedures as they exist in physical applications.

Procedure: A group of activities which executes a process carried out by a specific technique.

Process: A low-level action or group of actions that starts or stops and is repeatedly executed in a defined sequence.

Process Action: A description of how a process affects entities, attributes, and/or relationships.

Process Dependency: A process dependency exists when one process depends on other processes to complete a task.

Property: A characteristic of a component of an architecture.

Relationship: The action an entity takes upon or receives from another entity. Depicts business rules of an enterprise.

Strategy: A concept that embodies a scheme or plan for achieving some purpose.

Subject Area: A combination of entities, relationships and attributes selected to satisfy a particular user or functional view.

Substantive Entity Type: An entity type which is meaningful and relevant to the enterprise independent to the existence of any other entity type.

Substantive ERD: An entity relation diagram (ERD) which contains only substantive objects.

Substantive Relationship: A relationship between entities of substantive entity types of between sub-entity types.

Substantive Sub-Entity Type: A substantive entity type which depends on the existence of the Entity Type to which it is subordinate.

System: An enterprise's grouping of components necessary to achieve an aspect of its mission; includes people, organization, policy, paper, reports, hardware, software, etc.

Systems Modernization Methodology: The standard methodology which DLA shall use in the application of the principles of information engineering (IE) and data management to the planning, analysis, design, acquisition, and deployment of its information resources.

Target Architecture: A structured representation of the desired architecture to accomplish a specific business purpose.

Task: A concept that describes a specific piece or amount of work, often expected to be finished within a specific time.

Technical Architecture: The structured representation of hardware, systems protocol and development software, end-user devices, and communication links which support application systems.

Unit Analysis: A phase of analysis where the lowest level processes and data components are further defined and related together.

User Views: A system design component which represents user access to system processes and data; serves as the basis for development of screen layouts.

APPENDIX B - LIST OF ACRONYMS

AD	Action Diagram
CDA	Conceptual Data Architecture
CFR	Conceptual Functional Architecture
CIA	Conceptual Information Architecture
CRUD	Create Read/Retrieve Update Delete
DEC-D	Decomposition Diagram
DEP-D	Dependency Diagram
DLA	Defense Logistics Agency
EMC	Enterprise Model Component
E-R	Entity Relationship
ERD	Entity Relationship Diagram
IEW	Information Engineering Workbench
IOM	Interoffice Memorandum
JCS	Joint Chiefs of Staff
LIA	Logical Information Architecture
MAD	Module Action Diagram
PCD	PC Dictionary

APPENDIX C - GENERAL IEW PROCEDURES

TABLE OF CONTENTS

0. LOGON AND PRINTING PROCEDURES

0.1 IEW PROCEDURES

0.1.1 IEW LOGON PROCEDURES

0.1.1.1 TURN ON THE COMPUTER
0.1.1.2 ENTER "CIEW"
0.1.1.3 "INFORMATION ENGINEERING WORKBENCH" WINDOW IS DISPLAYED
0.1.1.4 TO RUN THE PLANNING WORKSTATION:

0.1.1.4.1 ENTER "1" IN THE "ENTER YOUR SELECTION" FIELD
0.1.1.4.2 THE "PLEASE IDENTIFY YOURSELF" WINDOW IS DISPLAYED
0.1.1.4.3 ENTER "NEWUSER" INTO THE "USER" FIELD
0.1.1.4.4 A BLANK WINDOW IS DISPLAYED IN THE PLANNING WORKSTATION

0.1.1.5 TO RUN THE ANALYSIS WORKSTATION:

0.1.1.5.1 ENTER "2" IN THE "ENTER YOUR SELECTION" FIELD
0.1.1.5.2 THE "PLEASE IDENTIFY YOURSELF" WINDOW IS DISPLAYED
0.1.1.5.3 ENTER "NEWUSER" INTO THE "USER" FIELD
0.1.1.5.4 A BLANK WINDOW IS DISPLAYED IN THE ANALYSIS WORKSTATION

0.1.1.6 TO RUN THE DESIGN WORKSTATION:

0.1.1.6.1 ENTER "3" IN THE "ENTER YOUR SELECTION FIELD
0.1.1.6.2 THE "PLEASE IDENTIFY YOURSELF" WINDOW IS DISPLAYED
0.1.1.6.3 ENTER "NEWUSER" INTO THE "USER" FIELD
0.1.1.6.4 A BLANK WINDOW IS DISPLAYED IN THE DESIGN WORKSTATION

0.1.2 IEW PRINTING PROCEDURES

EXECUTING THESE PRINT PROCEDURES ASSUMES THAT THE USER IS IN ONE OF THE "DISPLAY" WINDOWS OF THE WORKSTATIONS, SUCH AS:

PLANNING WORKSTATION:

- ASSOCIATION MATRIX
- DECOMPOSITION DIAGRAM
- ENTITY DIAGRAM

0.1.2.1 PULL DOWN THE LEFT-MOST WINDOW
0.1.2.2 SELECT "FILE OUTPUT"
0.1.2.3 "CREATE A PRINT FILE" WINDOW IS DISPLAYED
0.1.2.4 PRESS "PROCEED"
0.1.2.5 "NOTE" WINDOW IS DISPLAYED
0.1.2.6 PRESS "PROCEED" KEY
0.1.2.7 PULL DOWN THE LEFT-MOST WINDOW
0.1.2.8 SELECT "QUIT"
0.1.2.9 "NOTE" WINDOW IS DISPLAYED
0.1.2.10 PRESS "PROCEED" KEY
0.1.2.11 "INFORMATION ENGINEERING WORKBENCH" MAIN MENU IS DISPLAYED
0.1.2.12 ENTER "4" TO "RUN THE OUTPUT PROGRAM"
0.1.2.13 "OUTPUT" WINDOW IS DISPLAYED
0.1.2.14 PRESS "ADD NAME" KEY
0.1.2.15 SELECT "LMVER10" DIRECTORY WITHIN THE "*.GEM" WINDOW
0.1.2.16 THE FILES WITHIN THE DIRECTORY ARE DISPLAYED WITHIN THE "*.GEM" WINDOW
0.1.2.17 SCROLL DOWN THE LISTING AND SELECT THE "KWDIAG.GEM" FILE
0.1.2.18 PRESS "OK" KEY
0.1.2.19 SELECT THE "LASER PRINTER" ICON (TOP RIGHT OF SCREEN)
0.1.2.20 PRESS "START" KEY
0.1.2.21 AFTER THE "HOUR GLASS" ICON DISAPPEARS, PULL DOWN THE "FILE" MENU
0.1.2.22 SELECT "QUIT"
0.1.2.23 "INFORMATION ENGINEERING WORKBENCH" WINDOW IS DISPLAYED
0.1.2.24 FOLLOW THE "LOGON PROCEDURES" TO RETURN TO THE DESIRED WORKSTATION (I.E., PLANNING, ANALYSIS, OR DESIGN)

APPENDIX D - GENERAL PC DICTIONARY PROCEDURES

APPENDIX D - Table of Contents

1. PURPOSE

The purpose of these PC DICTIONARY detailed procedures is to explain the basics of operating PC DICTIONARY.

2. COMPONENTS/TERMS

2.1 MEMBER

The basic component of the data dictionary. Member is to the data dictionary as word is to Webster's. A member is anything you wish to document in a data dictionary. It is also known as a dictionary entity. Examples of members for the entity member type are contract, line item, legal entity, and government agency.

2.2 MEMBER TYPE

A category of members. Examples of member types are function, process, entity, context attribute, and concatenated attribute. Each member type can have many members associated with it. A member may have only one member type.

2.3 ATTRIBUTE

A descriptive characteristic or property of a member. A complete set of populated attributes provides the full definition of a member. Also called a "clause". Examples of attributes for the context attribute member type are definition, description, alias, legal values and editing rules. NOTE: This term has a different meaning in Procedures 2.1. It is used here in Appendix D *in context of the dictionary* structure.

3. INPUT PRODUCTS

Does not apply to these procedures.

4. GENERAL PROCEDURES

4.1 LOGON

4.1.1 At C:\ prompt, change directory to PCDICT.

4.1.2 Enter PCDICT to initiate PC Dictionary.

4.1.3 Takes you to main menu.

4.2 GENERAL GUIDELINES

4.2.1 Refer to template at bottom of screens.

4.2.2 Use F1 for HELP; definitions, syntax, and examples of each attribute are in the HELP within DATA ENTRY.

4.2.3 Use F2 whenever appropriate for a look up list; saves keystrokes and possible misspellings.

4.2.4 Use ALT-F7 to see a list of the hot keys: ALT-F10 report destination ALT-E error log ALT-N version of PC Dictionary

4.3 GENERIC 'HOW-TO-ENTER' PROCEDURES

Following are the generic procedures for how to Add, Edit, Delete, Copy, or Rename a dictionary member.

4.3.1 ADD a new member

4.3.1.1 Select DATA ENTRY from MAIN MENU.

4.3.1.2 Enter appropriate name, following Naming Conventions found in the Appendix E.

4.3.1.3 Enter appropriate member type or select from look up list [F2].

4.3.1.4 Enter necessary attributes (reference Section 4.4 for more details).

4.3.1.5 Save new member [F10].

4.3.2 EDIT a local dictionary member

4.3.2.1 Select DATA ENTRY from MAIN MENU.

4.3.2.2 Enter appropriate member name or select from look up list [F2].

4.3.2.3 Edit desired attributes (reference Section 4.4 for more details).

4.3.2.4 Save edited member [F10].

4.3.3 DELETE a local dictionary member

4.3.3.1 Select DATA ENTRY from MAIN MENU.

4.3.3.2 Enter appropriate member name or select from look up list [F2].

4.3.3.3 Delete member [F6].

4.3.4 COPY a local dictionary member

4.3.4.1 Select DATA ENTRY from MAIN MENU.

4.3.4.2 Enter member name to copy from or select from look up list [F2].

4.3.4.3 Invoke copy command [F7].

4.3.4.4 Enter new name.

4.3.5 RENAME a local dictionary member

4.3.5.1 Select DATA ENTRY from MAIN MENU.

4.3.5.2 Enter member name to rename or select from look up list [F2].

4.3.5.3 Invoke copy command [F7].

4.3.5.4 Enter new name.

4.3.5.5 Invoke delete command for old member [F6].

4.3.5.6 From data entry, bring up look-up list again {F2} to see if old name still exists, but is NULL.

4.3.5.7 If it is NULL, go to QUERY menu.

4.3.5.8 Select WHAT USES.

4.3.5.9 Select DIRECTLY.

4.3.5.10 Select BY MEMBER NAME.

4.3.5.11 Select old member name.

4.3.5.12 If old member name is used in other members do the following:

4.3.5.12.1 Edit each member that uses the old member name.

4.3.5.12.2 Edit the relationship that contains the old member name.

4.3.5.12.3 Delete the old member name.

4.3.5.12.4 Add the new member name.

4.3.5.12.5 Save relationship.

4.3.5.12.6 Save member.

4.4 GENERIC 'HOW-TO-ENTER' ATTRIBUTES BASED ON ATTRIBUTE TYPE

Adding, Editing, Deleting, Copying, and Renaming dictionary members are fairly straight forward functions, but there are different ways to enter attribute information based on the attribute type. A SHOW UDS REPORT aids in determining how to enter attributes for any member type. It provides the following information:

MEMBER TYPE: Names each member type established in the current dictionary. ATTRIBUTE NAME: Specifies each attribute that can be populated for each member type ATTRIBUTE TYPE: Specifies what type of information can be entered for each attribute REQUIRED: Specifies whether the attribute is required to be populated. PC ONLY: Specifies whether the attribute should go to the mainframe Corporate Data Dictionary VALIDATION: Specifies what type of validation has been

established for each attribute. LENGTH: Specifies the length of the attribute field.

The following procedures explain how to enter attribute information based on the attribute type. A SHOW UDS REPORT should be referenced while looking at the screen, until you learn the system.

4.4.1 ATTRIBUTE TYPE - ALIAS

4.4.1.1 Press F8.

4.4.1.2 Key in specific or general Alias.

4.4.1.3 Save Alias(es) [F10].

4.4.2 ATTRIBUTE TYPE - CATALOG

4.4.2.1 Press F8.

4.4.2.2 Add Catalog(s) or select from look up list [F2]

4.4.2.3 Save Catalog(s) [F10].

4.4.3 ATTRIBUTE TYPE - KEYWORD

4.4.3.1 Press F2 for lookup list.

4.4.3.2 Use arrow key to highlight.

4.4.3.3 Press ENTER to select desired keyword.

4.4.4 ATTRIBUTE TYPE - RELATION

(To Add A Relation)
4.4.4.1 Press F8.

4.4.4.2 Add sub-member or select from look up list [F2].

4.4.4.3 Save sub-member [F10].

4.4.4.4 Repeat add and save for each sub-member.

4.4.4.5 Save Relation(s) [F10].

(To Edit/Delete Relation)
4.4.4.6 Press F8.

4.4.4.7 Delete member {F6}.

4.4.4.8 Enter sequence # of member to delete.

4.4.4.9 Save Relation(s) {F10}.

4.4.5 ATTRIBUTE TYPE - RELATION WITH BOUND

4.4.5.1 Press F8.

4.4.5.2 Add sub-member or select from look up list [F2].

4.4.5.3 Bound and clause are optional.

4.4.5.4 Save sub-member [F10].

4.4.5.5 Repeat add and save for each sub-member.

4.4.5.6 Save relation(s) with bound [F10].

4.4.6 ATTRIBUTE TYPE - RELATION WITH CLAUSE

4.4.6.1 Press F8.

4.4.6.2 Add sub-member or select from look up list [F2].

4.4.6.3 Clause is optional.

4.4.6.4 Save sub-member [F10].

4.4.6.5 Repeat add and save for each sub-member.

4.4.6.6 Save relation(s) with clause [F10].

4.4.7 ATTRIBUTE TYPE - STRING

4.4.7.1 Key in directly. 4.4.7.2 Field will scroll.

4.4.8 ATTRIBUTE TYPE - TEXT

4.4.8.1 Press F8.

4.4.8.2 Word wrap feature.

4.4.8.3 May use extra Clipper commands: CTRL-Y delete entire line CTRL-N insert a line CTRL-W save input CTRL-M moves the text following the cursor to the next line of in insert mode.

4.4.8.4 Save text [F10].

4.5 REPORTS

The following sections explain how to get reports from your local dictionary, pertaining to the dictionary structure plus one report containing all currently populated information.

4.5.1 SHOW UDS

This report displays the structure of your local dictionary including member types, attributes, and validation.

4.5.1.1 Select SHOW UDS REPORT from REPORT MENU.

4.5.1.2 Select member type(s) [SPACE BAR].

4.5.1.3 Check report destination [ALT-F10].

4.5.1.4 Print report [F10-GO].

4.5.2 ATTRIBUTE DEFINITION

This report provides an alphabetical listing of any or all of the attributes which can be populated in your local dictionary; this report prints attributes independent of the member type(s) to which they are associated.

4.5.2.1 Select ATTRIBUTE DEFINITION from REPORT MENU.

4.5.2.2 Select attribute(s) [SPACE BAR].

4.5.2.3 Check report destination [ALT-F10].

4.5.2.4 Print report [F10-GO].

4.5.3 MEMBER DEFINITION

This report gives all of the information currently documented in your local dictionary about any member(s) you select.

4.5.3.1 Select MEMBER DEFINITION from REPORT MENU.

4.5.3.2 Select member(s) [SPACE BAR].

4.5.3.3 Check report destination [ALT-F10].

4.5.3.4 Print report [F10-GO].

4.5.4 CATALOGUE LISTING

This report consists of all unique catalogue names and the number of occurrences of each in your local dictionary.

4.5.4.1 Check report destination [ALT-F10].

4.5.4.2 Select CATALOGUE LISTING from REPORT MENU.

4.5.5 SPECIFIC ALIAS

This report provides a list of all valid specific aliases which can be documented in your local dictionary.

4.5.5.1 Select SPECIFIC ALIAS REPORT from REPORT MENU.

4.5.5.2 Check report destination [ALT-F10].

4.5.5.3 Select alphabetic or numeric.

4.5.6 ALIAS LISTING

This report generates a list of the values and the number of occurrences of all aliases in your local dictionary.

4.5.6.1 Check report destination [ALT-F10].

4.5.6.2 Select ALIAS LISTING from REPORT MENU.

4.6 QUERIES

The following instructions tell how to query your local dictionary, basically for attribute or relationship information that was entered through DATA ENTRY.

4.6.1 GLOSSARY

Use this query when you only want to report certain attribute(s) within certain member type(s).

4.6.1.1 Select GLOSSARY from QUERY MENU.

4.6.1.2 Select desired attribute(s) [SPACE BAR].

4.6.1.3 F10-GO.

4.6.1.4 Select memb ype(s) [SPACE BAR].

4.6.1.5 Check r p c destination [ALT-F10].

4.6.1.6 Print report [F10-GO].

4.6.2 CATALOGUE

The query lists members of your local dictionary that contain a specified catalogue or combination of catalogues.

4.6.2.1 Select CATALOGUE from QUERY MENU.

4.6.2.2 Select query logic, EQUAL or NOT EQUAL.

4.6.2.3 Enter catalogue name or select from look up list [F2].

4.6.2.4 Repeat query logic and catalogue name selection, is desired.

4.6.2.5 Check report destination [ALT-F10]. 4.6.2.6 Start query [F10].

4.6.3 LIST

This query provides a list of all member names in your local dictionary of a specified member type(s).

4.6.3.1 Select LIST from QUERY MENU.

4.6.3.2 Select member type(s) [SPACE BAR].

4.6.3.3 Check report destination [ALT-F10].

4.6.3.4 Print report [F10-GO].

4.6.4 WHAT CONSTITUTES

This query provides a list of direct or indirect relationships FROM a particular member in your local dictionary; a list of 'children/grandchildren.'

4.6.4.1 Select WHAT CONSTITUTES from QUERY MENU.

4.6.4.2 Choose DIRECT or INDIRECT.

4.6.4.3 Choose MEMBER NAME or MEMBER TYPE order.

4.6.4.4 Select member(s) [SPACE BAR].

4.6.4.5 Check report destination [ALT-F10]. 4.6.4.6 Print report [F10-GO].

4.6.5 WHAT USES

This query provides a list of direct or indirect local dictionary relationships TO a particular member in your local dictionary; a list of 'parents/grandparents.'

4.6.5.1 Select WHAT USES from QUERY MENU.

4.6.5.2 Choose DIRECT or INDIRECT.

4.6.5.3 Choose MEMBER NAME or MEMBER TYPE order.

4.6.5.4 Select member(s) [SPACE BAR].

4.6.5.5 Check report destination [ALT-F10].

4.6.5.6 Print report [F10-GO].

4.6.6 WHAT IS

This query defines the type of attribute or member name you specify.

4.6.6.1 Select WHAT IS from QUERY MENU.

4.6.6.2 Check report destination [ALT-F10].

4.6.6.3 Enter unknown name.

4.6.6.4 ENTER.

4.6.7 WHOSE ALIAS IS

This query lists all local dictionary members to which the alias you specify relates.

4.6.7.1 Select WHOSE ALIAS IS from QUERY MENU.

4.6.7.2 Check report destination [ALT-F10].

4.6.7.3 Enter alias.

4.6.7.4 Start query [F10].

4.6.8 WHICH

This query lists all local dictionary members and/or null members of a specified category or categories, satisfying a stated condition or set of conditions (which member type has a certain relationship with a specified member).

4.6.8.1 Select WHICH from QUERY MENU.

4.6.8.2 Enter member type or use look up list [F2].

4.6.8.3 Enter relationship or use look up list [F2].

4.6.8.4 Enter member name or use look up list [F2].

4.6.8.5 Check report destination [ALT-F10].

4.6.8.6 Print report [F10-GO].

4.7 ARCHIVING

The dictionary(ies) should be backed up at the end of any day that the dictionary(ies) has been used.

4.7.1 From C:\PCDICT, enter PCDBACK.

4.7.2 Make sure you are in the dictionary that needs backing up. If not, change to that dictionary.

4.7.3 Select BACKUP.

4.7.4 Select where you want the backup to reside.

4.7.5 Enter name of backup file.

4.7.6 Run backup.

4.7.7 Repeat for each dictionary.

5. OUTPUT PRODUCTS

Does not apply to these procedures.

6. RULES

Does not apply to these procedures.

7. EXAMPLES

Does not apply to these procedures.

APPENDIX E - NAMING CONVENTION STANDARDS

APPENDIX E - Table of Contents

4.5 Procedures specific to adding enterprise model component names in KnowledgeWare's Information Engineering Workbench (IEW)

4.5.1 Enterprise model entities
4.5.2 Enterprise model attributes
4.5.3 Enterprise model relationships
4.5.4 Enterprise model functions
4.5.5 Enterprise model processes

5. CLASS WORDS
6. PRIME WORDS

1. PURPOSE

The following naming standard conventions have been developed to support common goals of standardizing and controlling shared corporate data. A set of consistently applied naming standards contributes to these goals by helping to ensure that the format of shared data is the same across the various using activities and by reducing the amount of redundant data. These in turn maximize the amount of data that can be shared by different applications and users.

2. COMPONENTS/TERMS

2.1 Adjective Word

An adjective word modifies the noun word in the enterprise model components Function and Process (see 4.3.3.2). The adjective word indicates the kind of activity being named and the properties of that activity.

2.2 Alias

An alias is any name by which the enterprise model component is known other than the dictionary member name and the dictionary full business name. Aliases are often names that are specific to a particular tool or an application and are derived either from the requirements of the application or from the restrictions imposed by the programming language used to develop the application.

2.3 Class Word

The class word identifies the category or domain of information to which the data belongs, for example "DATE" or "NAME". It indicates the type of data that constitutes the enterprise model component.

2.4 Concatenated Name

The concatenated name is a shortened, abbreviated form of the full business name.

2.5 Full Business Name

The full business name is the clear text name of the enterprise component.

2.6 Full Name

The full name is the attribute in the dictionary that is used to record the full business name of the enterprise model component for dictionary maintenance purposes.

2.7 Member Name

The member name is a record in the dictionary that identifies a dictionary member. The member name is the key to the dictionary member

record. For dictionary maintenance purposes, the member name is a concatenated name with a two-letter prefix attached to the name.

2.8 Modifier Word

Modifier words are used to more fully describe a component in the dictionary member types Entity, Domain-Attribute, Concatenated-Attribute, and Context-Attribute (see 4.3.3.2).

2.9 Noun Word

A noun word names the enterprise model component Function and is used in the name of the enterprise model component Process in conjunction with the verb word (see 4.3.3.2).

2.10 Prime Word

The prime word is used in the dictionary member types Entity, Context-Attribute, and Concatenated-Attribute to identify the enterprise model component about which information is being kept. The components identified by the prime words are strictly logical; that is, they belong to the information architecture and not to any particular application or data base. In this way the prime word relates an enterprise model component, through the logical structure of the name, to the logical architecture of the enterprise.

2.11 Relationship Word

Relationship words are words that define an association between two *enterprise model components.*

2.12 Verb Word

Verb words identify the enterprise model component Process. Verb words identify what the enterprise does, the actions that make up its activities.

3. INPUT PRODUCTS

The input products to be named are the enterprise model components derived from the Conceptual Information Architecture and the Logical Information Architecture.

4. GENERAL PROCEDURES

4.1 Introduction

The procedures and rules used to develop enterprise model component names are determined in part by the tool being used when the name is created. The names, however, must be mapped across all the tools used. Thus, a general set of procedures has been provided that is not limited by any specific tool, followed by procedures specific to each tool used to develop the DLA enterprise model.

4.2 General rules

4.2.1 The name shall identify one and only one enterprise model component.

4.2.2 The name shall not be the same as any other name in the dictionary.

4.2.3 Prime words and class words used to name entities and attributes shall be selected from lists of approved prime words and class words. Class words are reserved and shall not be used as prime words, modifiers, or qualifiers.

4.3 Generic procedures

The procedures specified in section 4.3 will, if followed, help ensure that all abbreviations, all words, and all names used in the enterprise model are unique. For clarity, the procedures are provided in outline form in the following table:

ENTERPRISE MODEL COMPONENT (EMC) NAME DEVELOPMENT

- (4.3.1) Research the EMC name
  - (4.3.1.1) Check lists of approved names
    - (4.3.1.1.1) Check for synonyms
    - (4.3.1.1.2) Use any approved names that name the EMC
- (4.3.2) Establish a full business name
  - (4.3.2.1) Describe the EMC
  - (4.3.2.2) Evaluate the EMC description
    - (4.3.2.2.1) Identify key words
    - (4.3.2.2.2) Verify correct use of words
    - (4.3.2.2.3) Change verbs to nouns if required
    - (4.3.2.2.4) Spell out any abbreviations and acronyms
  - (4.3.2.3) Check approved-word lists
  - (4.3.2.4) Check name length
- (4.3.3) Establish a concatenated name for the EMC
  - (4.3.3.1) Evaluate the full business name
  - (4.3.3.2) Change name to follow format rules
  - (4.3.3.3) Abbreviate words
    - (4.3.3.3.1) Check lists of abbreviations
    - (4.3.3.3.2) Create new abbreviations
  - (4.3.3.4) Check name length
- (4.3.4) Add EMC name to dictionary

4.3.1 Research enterprise model component name

The enterprise model component name is the name assigned to the enterprise model component. The names, the words, and the abbreviations that make up the names are maintained in the enterprise data dictionary.

4.3.1.1 Check list of existing approved names for enterprise model components.

4.3.1.1.1 Watch for possible synonyms, i.e. different names that describe the same component (for example "customer" and "consumer" may be synonymous). Names are synonymous in their specific usage or distinguishing characteristics more than in their definitions and the judgment of the functional user may be required to determine if two names are synonymous.

4.3.1.1.2 If a name is located on the list that can be used to name the component, that name shall be used; otherwise, the procedures outlined in this appendix shall be used to create a new name. If a name is not located that names the component, a new name shall be developed.

4.3.2 Establish a full business name for the enterprise model component

The full business name is the clear text English name of the component that clearly describes the component. In the full business name, the word order shall be the same as in common English usage. The name shall contain no abbreviations and all acronyms shall be spelled out.

4.3.2.1 The first step in naming an enterprise model component is to develop a clear, concise, and accurate description of the component. Describe the component by its distinguishing characteristics in a plain English sentence or phrase. Avoid adding unnecessary words to the description.

4.3.2.2 Evaluate the enterprise model component description

4.3.2.2.1 Identify the grammatically key words used in the description and the words that are required for the component as shown in 4.3.3.2 (for example, prime words, class words, relationship words, etc., as defined in section 2). Some words may be hyphenated into terms that will function as one word (for example, LEGAL-ENTITY or LINE-ITEM). By creating a new word out of two words, unique prime words may be created that both reflect normal business usage and that satisfy the requirements of the data model. This procedure may also allow the use of reserved words in unreserved modifiers. In addition, when acronyms are fully spelled out, the words that comprise the acronym should be separated by hyphens in order to identify those words that form the acronym. Verify that the words are unambiguous and appropriate to the enterprise model component.

4.3.2.2.2 For entities and attributes, verify that prime words and class words are used correctly and that only one prime word and/or one class word is used in the description. If more than one prime word is used, this is a good indication that the description may be describing more than one entity and the entity may require further analysis.

4.3.2.2.3 If required by the rules for the component name (see 4.3.3.2.8, for example), change verbs to nouns (for example, the verb "acquire" could be changed to "acquisition" or the verb "process" could be changed to the gerund form "processing").

4.3.2.2.4 Spell out any abbreviations or acronyms.

4.3.2.3 Check approved-word lists

Look up the words that make up the name on the lists of approved words. Wherever possible, the words on the approved-word lists should be substituted for the words initially used in the name, but be careful to avoid synonyms and homonyms.

4.3.2.3.1 Any new words required to name the component will be added to the list of approved words when the name is added to the dictionary (see 4.3.4).

4.3.2.4 Check name length

The maximum allowed length of the name may depend on the tool being used. If the name exceeds the maximum allowed length, remove enough unimportant words to reduce the name to the allowed length.

4.3.3 Establish a concatenated name for the enterprise model component

The concatenated name is a shortened, abbreviated form of the full business name that conforms to the specified rules for length and word order for the component name.

4.3.3.1 Evaluate the full business name (see 4.3.2)

Remove any unnecessary words such as articles, connectors, and prepositions.

4.3.3.2 Check name against format rules for that component name

Verify that only allowed words such as reserved words, nouns, or verbs are used in the name. Arrange the words in the order required for that component name, separate all words with a hyphen, and add any required prefixes. Rules specific to each member type follow the table. For further definition and elaboration see the definition for the member types maintained in the data dictionary.

MEMBER TYPE NAME FORMATS*

MEMBER TYPE	NAME FORMAT
Domain-Attribute	(Modifier(s))-Class word-(Qualifier(s))
Entity	Prime word-(Modifier(s))
Context-Attribute	Prime word-(Modifier(s))-Class-word-(Qualifier(s))
Concatenated-Attribute	Prime word-(Modifier(s))-Class-word-(Qualifier(s))
Relationship	Entity name-Relationship word-Entity name

Dataflow	Source name-Verb word-Destination name
External-Agent	External Agent-Verb word-Destination name
Function	Noun word(s)-(Adjective word(s))
Process	Verb word-Noun word(s)-(Adjective word(s))
Userview	Abbreviated word(s)
Information-Requirement	Abbreviated word(s)
Objective	Abbreviated word(s)
Critical-Success-Factor	Abbreviated word(s)
Subject-Area	Abbreviated word(s)

*Optional words are indicated by parentheses.

4.3.3.2.1 Member type Domain-Attribute

A Domain-Attribute identifies a common set of formats and values for one or more Context and/or Concatenated Attributes. A Domain-Attribute name shall have one class word (see 2.3) selected from a list of reserved class words and may contain one or more optional modifiers. The class word will be a noun that indicates the type of data that forms the enterprise model component. The modifiers will help further describe the data and shall precede the class word in the Domain-Attribute word order. In addition, for quantitative data, optional qualifiers that describe the unit of measure used by the data may be added as a modifier to the end of the Domain-Attribute name.

4.3.3.2.2 Member type Entity

An entity represents a person, place, thing, concept or event about which the enterprise requires information. An entity name shall have one prime word (see 2.10) selected from a list of prime words and may contain one or more optional modifiers. The prime word shall be a noun in the singular form. The modifiers help further describe the entity.

4.3.3.2.3 Member type Context-Attribute

A Context-Attribute is any aspect, quality, characteristic, or descriptor of an entity. In its construction, the Context-Attribute is a combination of the Prime word-Modifier element from entities and the Modifier-Class word element from Domain-Attributes.

4.3.3.2.4 Member type Concatenated-Attribute

A Concatenated-Attribute is a set, or group, of Context-Attributes (see 4.3.3.2.3) that may be referred to as a unit.

4.3.3.2.5 Member type Relationship

A Relationship is an action which one entity takes upon or receives from another entity as shown on the applicable entity relationship diagrams. The Relationship name contains the names of the related entities separated by a word or term that describes the relationship. The word describing the relationship describes an action and so should be in the verb form. The relationship word should be in the present tense. Relationship words in the active voice will often have a converse passive voice. For example, CUSTOMER-PURCHASES-ITEM may have a converse relationship named ITEM-IS-PURCHASED-BY-CUSTOMER.

4.3.3.2.6 Member type Dataflow

Dataflows are composed of information about entities and attributes. They represent information about one or more entities which flows into and out of External-Agents and to and from Processes as represented on the applicable dataflow diagrams. The first word in the Dataflow name shall name the immediate source of the data and the last word shall name the recipient or destination of the data. The source and destination names shall be separated by the name of the Dataflow. This name shall be a verb since it names an action and should be in the present tense.

4.3.3.2.7 Member type External-agent

An External-Agent is an organization that is external to the enterprise. The organization can be a source of data which flows into processes, and the organization can receive data from the processes as represented on the dataflow diagrams. The first word in the name shall be a noun that names the External-Agent; the second word shall be a verb that names the flow of data; and the third word shall be a noun that names the destination of the data.

4.3.3.2.8 Member type Function

A Function is a concept that embodies a major, high-level activity of an enterprise, comprising a broad group of processes that together completely support one aspect of furthering a mission of the enterprise. The function is named by a noun and optional adjectives that further describe the function. The noun may be derived by converting a verb to its gerund form, for example, "PURCHASE" may be converted to "PURCHASING".

4.3.3.2.9 Member type Process

A Process is a low-level activity or group of activities that starts or stops and is repeatedly executed. Decomposing a Function yields its component Processes. The Process name includes a verb that names the process, a noun that names the object of the verb and additional adjectives that further describe the process.

4.3.3.2.10 Member types Userview, Information-Requirement, Objective, Critical-Success-Factor, and Subject-Area

These member types have no format specifically defined for dictionary maintenance. The name structures are defined only as abbreviated words

in order to describe their dictionary member name format; otherwise the format will be determined by the requirements of the enterprise model component itself.

4.3.3.3 Abbreviate words as required

All words longer than five characters shall be abbreviated. Words less than five characters in length should be fully spelled out although this is not a requirement. Abbreviations may be less than five characters long.

4.3.3.3.1 Lists of standard abbreviations

Reserved words will already be recorded in the data dictionary with an approved abbreviation. Also, non-reserved words that have been used in other component names will be similarly recorded. The first step is to look up each word on these lists to determine if it has already been abbreviated. If it has already been abbreviated, then this approved abbreviation shall be used. Note: Different forms of the same word will have different abbreviations, for example the abbreviation of an "ing" gerund form of a verb will end with the letter "g" and this would not be used in the abbreviation of the present indicative tense. Be sure that the abbreviation is accurate for the form of the word you are using. If no approved abbreviations exist for the words in the name, then create a new abbreviation according to the following guidelines.

4.3.3.3.2 Creating a new abbreviation

(1) The meaning of the abbreviation should be as intuitively obvious to the user as possible.
(2) Use a short form of the word if it is easily recognized.
(3) Use standard suffix abbreviations (ing=g, ment=mt, able=bl, tion=tn).
(4) Drop one letter of any double consonants.
(5) Drop vowels from right to left, unless:

    (a) The clear meaning of the abbreviation is lost.
    (b) The vowel is the first letter of the word.
    (c) The word begins with a diphthong (au, ai, ei, ou, etc.).

(6) Drop consonants from right to left until the length limit is reached, unless:

    (a) The clear meaning of the abbreviation is lost.
    (b) The consonant is the first letter of the word.

(7) Do not use abbreviations that are words in their own right (PART for partition).
(8) Do not use abbreviations that are common abbreviations for other words outside the organization (COD is normally used for Cash on Delivery).
(9) A word shall have only one abbreviation and a particular abbreviation shall be used for only one word.

4.3.3.4 Check name length

The maximum allowed length of the name may depend on the tool being used. If the name exceeds the maximum allowed length, remove enough unnecessary words to reduce the name to the allowed length.

4.3.4 Add enterprise model component name to dictionary

Add the enterprise model component name and its component words to the data dictionary and word lists.

4.4 Procedures specific to recording dictionary member names and words in PC DICTIONARY

These instructions describe how to record new names and words in PC DICTIONARY. The words to be added are those words that are used in enterprise model component names when new names are created. By maintaining a record of the words used in names, a list of approved words is kept that can be used to create new names. This effectively reduces the number of words that will be used in creating component names, thereby reducing the number of synonymous words and names.

4.4.1 Adding dictionary member names

The following paragraphs provide the rules and conventions developed for adding dictionary names to PC DICTIONARY.

4.4.1.1 General rules

4.4.1.1.1 Dictionary member name

The dictionary member name is the concatenated name of the enterprise model component (see 2.4 and 2.7).

RULE: The maximum allowed length for a member name in PC DICTIONARY is 32 characters, including any prefixes and hyphens.

RULE: There shall be no blank spaces in the member name; if the name contains more than one word, the words shall be separated by hyphens. Prefixes such as "pre" or "non" should be added to the word they modify rather than separated by a hyphen so the prefix will not appear to form a separate word.

RULE: Abbreviations used in the member name shall be unique. The maximum allowed length for an abbreviation is five characters.

4.4.1.1.2 Dictionary full name

The dictionary full name is the unabbreviated, plain English, descriptive name of the enterprise model component (see 2.5 and 2.6). The full name is the authoritative name maintained in the dictionary; that is, the full name completely describes the component, and any

other names used to name the component are regarded as aliases of the full name because the constraints and format requirements placed upon the aliases generate duplicate and/or less meaningful names.

RULE: The maximum allowed length in PC DICTIONARY for a full name is 254 characters.
RULE: The full name shall contain no abbreviations or acronyms.
RULE: Any single word composed of multiple words separated by hyphens shall also have the words separated by hyphens in the full name.
RULE: The full name shall not contain any prefixes used as identifiers (see 4.4.1.2, 4.5.4, and 4.5.5).

4.4.1.2 Enterprise model component member types

When dictionary names are recorded in PC DICTIONARY, the following prefixes shall be added to the dictionary member name and separated from the name with a hyphen:

Domain-Attribute	DM
Entity	EN
Context-Attribute	CT
Concatenated-Attribute	CC
Relationship	RL
Dataflow	DF
External-Agent	EA
Function	FN
Process	PR
Userview	UV
Information-Requirement	IR
Objective	OB
Critical-Success-Factor	CF
Subject-Area	SA

4.4.2 Adding a new word in PC DICTIONARY under member type WORD

Word lists for the Contractor Profile Pilot Project are maintained in PC DICTIONARY in the dictionary named DLAADMIN under two member types: WORD and ACRONYM. The member type WORD is the basic list of words that have been used in component names. All terms made up of hyphenated words shall be recorded in the dictionary as new words. Each word in the member type WORD shall be prefixed with the word "WORD".

4.4.2.1 From the main menu in PC DICTIONARY select:

"A..DATA ENTRY"

4.4.2.2 Enter the new word as a member name prefixed with the word "WORD" and a hyphen (e.g., WORD-MANAGEMENT).

RULE: The maximum allowed length for a member name in PC DICTIONARY is 32 characters, including the prefix "WORD" and hyphens.

RULE: There shall be no blank spaces in the member name; if the name contains more than one word, the words shall be separated by hyphens. Prefixes such as "pre" or "non" should be added to the word they modify rather than separated by a hyphen so the prefix will not appear to form a separate word.

4.4.2.3 Enter the member type "WORD"

4.4.2.4 Adding attributes

4.4.2.4.1 Add ABBREVIATION

The abbreviation should be formed in accordance with the procedures given in 4.3.3.3.2. All words shall have an ABBREVIATION attribute recorded, even if the abbreviation is the word itself.

RULE: The abbreviation shall be unique.
RULE: The maximum allowed length for the abbreviation is five characters.

4.4.2.4.2 Add ALIAS

Add any aliases that may exist for this word. This attribute is optional since there may not be any aliases or synonyms for the word. IEW aliases are listed on the line reserved for the IEW alias. If synonyms exist for the word, they should be listed on blank lines with no classifiers. This will allow the listing of multiple synonyms for any one word. Plural forms of words that are spelled differently from the singular form may also be entered on the line reserved for plurals. This will capture the plural form as used by the system without having to create a new dictionary member with a unique abbreviation. All aliases and synonyms for any word shall be recorded.

RULE: The maximum allowed length in PC DICTIONARY for an alias is 32 characters, although a shorter length may be required by the programming language or application which uses the synonym.

4.4.2.4.3 Add CATALOGUE

The CATALOGUE attribute is used to indicate whether the word is a prime word, class word, or modifier. By listing these as catalogue attributes, lists of prime words, class words, or modifiers may be generated. Reserved words have a catalogue attribute of CLASS. All others have an attribute of PRIME and/or MODIFIER.

RULE: Each class word shall have only the catalogue CLASS since CLASS is exclusive. All other words shall be recorded as PRIME and/or MODIFIER.

4.4.2.4.4 Add FULL-NAME

The full name is the word fully spelled out. Normally the full name will be the same as the member name except it will not contain the prefix WORD. Each word shall have a full name recorded.

RULE: The maximum allowed length is 254 characters.
RULE: The full name shall contain no abbreviations or acronyms.
RULE: Any single word composed of multiple words separated by hyphens shall have the words separated by hyphens in the full name.
RULE: The full name shall not contain the prefix WORD.

4.4.2.4.5 Add SOURCE

The source is a short description of the activity that originated the enterprise model component containing the name that uses the word. There may be multiple sources of an enterprise model component name; in this case each should be listed. Source is not a required attribute.

4.4.2.4.6 Add DESCRIPTION

If necessary, a brief description of the word should be added. For prime words and class words the description should be a concise and complete definition of the word. Descriptions are optional for modifiers (although a description will help prevent synonyms) and required for all prime words and class words.

4.4.2.4.7 Add REFERENCE

The attribute REFERENCE can be used to record other pertinent notes and comments that could not be included as other attributes.

4.4.3 Adding a new word in PC DICTIONARY under member type ACRONYM

The member type ACRONYM was developed to list acronyms used in component names. It became necessary to provide a member type for acronyms separate from a member type for words for several reasons. First, many acronyms are also homonyms of actual words (for example, MAP (for "Military Aid Program") and "map") and the only way to record the difference in PC DICTIONARY is through the use of a different member type for acronyms. Second, many acronyms, when fully spelled out, exceed the maximum allowable character length for names. These lengthy names cannot be recorded in PC DICTIONARY or used in certain applications unless an acronym is used that reduces the total number of characters in a name. Third, some acronyms may use reserved words within the acronym. If the acronym is spelled out in a name, it may be that the reserved words are being used in an illegal manner--that is, they are used not as reserved words but as modifiers. The best way to avoid this conflict is to concatenate the words that form the acronym into a term that is treated as one word. The term is then verified, stored, and searched as one word rather than as multiple words. All acronyms shall be spelled out fully in the full business name attribute for the component name.

4.4.3.1 From the main menu in PC DICTIONARY select:

4.4.3.2 Enter the new acronym as a member name prefixed with the letters ACR and a hyphen (e.g., ACR-CAGE). Enter the acronym as it is normally used. Do not spell out any words unless they are normally spelled out in the acronym (e.g., ACR-I-AND-S).

RULE: The maximum allowed length for a member name in PC DICTIONARY is 32 characters, including the prefix ACR and hyphens.
RULE: There shall be no blank spaces in the member name; if the name contains more than one word, the words shall be separated by hyphens.

4.4.3.3 Enter the member type ACRONYM

4.4.3.4 Adding attributes

4.4.3.4.1 Add ALIAS

Add any aliases that may exist for this acronym. This attribute is optional since there may not be any aliases or synonyms for this acronym. IEW aliases are listed on the line reserved for the IEW alias. If synonyms exist for the acronym, they should be listed on blank lines with no classifiers. This will allow the listing of multiple synonyms for any one word. All aliases and synonyms for any word shall be recorded.

RULE: The maximum allowed length in PC DICTIONARY for an alias is 32 characters, although the length is effectively determined by the programming language or application which uses the synonym.

4.4.3.4.2 Add CATALOGUE

The CATALOGUE attribute is used to indicate whether the acronym is a prime word or a modifier. A class word will never, by definition, be an acronym.

RULE: Each acronym will have only the catalogue attributes PRIME and/or MODIFIER.

4.4.3.4.3 Add FULL NAME

The full name is the acronym fully spelled out with all words separated by hyphens.

RULE: The maximum allowed length is 254 characters, including hyphens.
RULE: The full name shall contain no abbreviations or acronyms.
RULE: All words (for the member type acronym) in the full name shall be separated by hyphens.
RULE: The full name shall not contain the prefix ACR.

4.4.3.4.4 Add SOURCE

The source is a short description of the activity that originated the enterprise model component name containing the acronym. There may be multiple sources of the enterprise model component name; in this case each should be listed. Source is not a required attribute.

4.4.3.4.5 Add DESCRIPTION

If necessary, a brief description of the acronym should be added. Descriptions are optional for modifiers (although a definition will help prevent synonyms) and required for prime words.

4.4.3.4.6 Add REFERENCE

The attribute REFERENCE can be used to record other pertinent notes and comments that could not be included as other attributes.

4.4.4 PC DICTIONARY reports and queries

Names, words, and acronyms, together with their attributes, may be researched in PC DICTIONARY using the following procedures.

4.4.4.1 Selected member types, selected member names, and all attributes

The following procedure will provide reports of selected member types, selected member names and all of their attributes. This report is useful for generating complete documentation on all words and acronyms with their attributes.

4.4.4.1.1 From the main menu, select:

"B..Report Menu"

4.4.4.1.2 From the report menu, select:

"C..Member Definition"

4.4.4.1.3 Select the members to be reported

4.4.4.2 Member name, member type, and selected attributes

The following procedure will provide reports of selected attributes of all members within selected member types. This report is useful for generating lists of words or acronyms showing their abbreviations, full names, and any other desired attributes.

4.4.4.2.1 From the main menu, select:

"C..Query Menu"

4.4.4.2.2 From the query menu, select:

"A..Glossary"

4.4.4.2.3 Select the attributes to be reported

4.4.4.2.4 Select the member types to report attributes from

4.4.4.3 Catalogue

The following procedure will provide reports of selected catalogues for all members of the dictionary. This report is useful for generating lists of prime words, class words, and modifiers.

4.4.4.3.1 From the main menu, select:

"C..Query Menu"

4.4.4.3.2 From the query menu, select:

"B..Catalogue"

4.4.4.3.3 Select all members whose catalogue equals PRIME, CLASS, or MODIFIER. Since class words are reserved they will only have the catalogue CLASS; other words may have catalogues of both PRIME and MODIFIER.

4.4.5 Name lists

The following procedure will provide a list of names maintained in PC DICTIONARY with any selected attributes. For the Contractor Profile Pilot Project, this information is maintained in the dictionary named DLALOG.

4.4.5.1 From the main menu, select:

"C..Query menu"

4.4.5.2 From the query menu, select:

"A..Glossary"

4.4.5.3 Select any desired attributes (for example, ABBREVIATION and FULL-NAME).

4.4.5.4 Select the desired member type (for a complete list of all names, all member types must be selected).

4.4.5.5 The list will be printed in alphabetical order beginning with the assigned two-letter member type code.

4.5 Procedures specific to adding enterprise model component names in KnowledgeWare's Information Engineering Workbench (IEW)

The following procedures provide the conventions to be followed when adding enterprise model component names to an information model in IEW. The conventions specified in sections 4.2 and 4.3 shall be followed

when creating new names. When adding enterprise model component names to IEW, either the approved abbreviated member name or the full name may be used, except the two-letter prefix on the abbreviated member name shall not be a part of the name entered in IEW. If a name is added to IEW that is not an approved dictionary member name and that does not follow the format specified for that member name, then the unique IEW name shall be entered in the dictionary as an IEW alias. In addition, any IEW Functions or Processes that require hierarchy/sequence identifiers (see 4.5.4 and 4.5.5) shall be recorded in the dictionary with the identifier as an IEW alias.

4.5.1 Enterprise model entities

When adding entity names to IEW models, the format shall be as specified for entities in 4.3.3.2 and 4.3.3.2.2. All letters shall be upper case.

4.5.2 Enterprise model attributes

When adding attribute names to IEW models, the format shall be as specified in 4.3.3.2, 4.3.3.2.1, 4.3.3.2.3, and 4.3.3.2.4. All letters shall be upper case. When reports are generated by IEW, the attribute name and associated entity name will be automatically separated by a period (".") by IEW.

4.5.3 Enterprise model relationships

When adding relationship names to IEW models, the format shall be as specified in 4.3.3.2 and 4.3.3.2.5. The entity names shall be upper case and the relationship verb-phrase shall be lower case with the words separated by hyphens, using the approved abbreviations. When reports are generated by IEW, the verb-phrase will be separated from the entity names by periods by IEW.

4.5.4 Enterprise model functions

When adding function names to IEW models, the format shall be as specified in 4.3.3.2 and 4.3.3.2.8. Approved abbreviations shall be used, however the words need not be separated by hyphens. Each function shall contain the correct function hierarchy/sequence identifier as a prefix, as shown in the following examples:

A - ACQUISITION (Function)
AA - PURCHASE REQUEST PROCESSING (Subfunction within A)
AB - OFFER EVALUATION (Subfunction within A)

4.5.5 Enterprise model processes

When adding process names to IEW models, the format shall be as specified in 4.3.3.2 and 4.3.3.2.9 and as follows. Approved abbreviations shall be used, however the words need not be separated by hyphens. Each process shall contain the correct process hierarchy/sequence identifier as a prefix, as shown in the following example:

AB - OFFER EVALN (Function)
ABA - CNDCT INTL EVALN OFFER (Process within Function AB)
ABAA - DTRMN RSPVS (Descendent Process within Process ABA)
ABAB - EVAL EXCPT PROPL (Descendent Process within Process ABA)
ABB - CNDCT PAS (Descendent Process within Process AB)

5. CLASS WORDS

The following is a list of class words and their definitions developed for use in DLA. The class words shall be added at the end of attribute names (see 4.3.3.2) in order to identify the type or domain of the data named by the attribute name. This list is complete for the Contractor Profile Pilot Project but may be amended as needed. Approved abbreviations are provided in parentheses following the class word.

AMOUNT (AMT), def: Monetary value arrived at by counting.

CODE (CD), def: Assigned set of letters or numbers used to represent words, phrases, or objects.

DATE (DATE), def: Calendar date, commonly expressed by day, month, and year.

IDENTIFIER (IDNTF), def: Sequence of alphanumeric characters that serves to indicate some object.

INDICATOR (INDCT), def: Word that indicates a certain status, as in a flag indicating that only one of two mutually exclusive options may be true at one time.

NAME (NAME), def: Designation for an object expressed in a word or phrase.

NUMBER (NBR), def: Nonquantitative number associated with an object or that may be used to uniquely identify an object.

PERCENT (PCT), def: Used to indicate that the amount or quantity is a percentage.

QUANTITY (QTY), def: Non-monetary numeric value arrived at by counting.

RATIO (RATIO), def: Calculated relation in degree or number between two similar things.

SIZE (SIZE), def: Dimensions or magnitude of something.

TEXT (TEXT), def: Unformatted character string descriptive field.

TIME (TIME), def: Specific point in the day expressed either in hours, minutes, and seconds or within the 2400-hour clock.

6. PRIME WORDS

The following list of prime words was developed from the Conceptual Information Architecture (CIA) and the Logical Information Architecture (LIA). The prime words are those used to name conceptual entities in the CIA and logical entities in the LIA. This list is complete for the Contractor Profile Pilot Project but may be amended as needed. Approved abbreviations are provided in parentheses following the prime word.

Alert-Action (ALRAC), def: An alert action acts as a flag to government agencies to identify contractors who exhibit deficient performance conditions.

Clause (CLAUS), def: A term or condition used in contracts or both solicitations and contracts, and applying after a contract award or both before and after award.

Contract (CONTR), def: A mutually binding legal instrument obligating the seller to furnish the supply, service, or data items and the buyer to pay for them.

Corrective-Action-Request (CAR), def: Request to contractors to take corrective action when a deficiency is identified.

Customer (CUST), def: Any government organization (DLA or otherwise) authorized to requisition items.

Data-Item-Description (DID), def: Standard form that provides descriptive information for a single data item to be provided in accordance with a contract.

Deficiency (DEFCN), def: Any defect or nonconforming condition found in a functional area at the time of review/evaluation.

Disclosure (DISCL), def: A third party legal action for a revelation/finding of problems with products/items or potentially illegal business practices of a contractor.

Employee (EMPL), def: A government person with assigned responsibilities who performs specific tasks in support of government mission and functions.

Engineering-Change-Proposal (ECP), def: A proposed change to a Technical Data Package.

First-Article-Test (FAT), def: A test and evaluation of the first article for conformance with specified contract requirements before or in the initial stage of production.

Fund-Account (FUND-ACCT), def: Monies appropriated to satisfy requirements for goods or services.

Government-Agency (GOVAG), def: An organizational unit or office of the United States Federal Government whose structure and mission are prescribed by an official competent authority and is responsible for specific functions.

Item (ITEM), def: A supply or service that has been or will be acquired to fulfill a government requirement.

Laboratory-Test (LAB-TEST), def: A formal test of the quality of an item using laboratory techniques and equipment, performed by in-house, commercial, or government laboratories.

Legal-Entity (LENTY), def: A person or group of persons, a corporation or other existence recognized by law as having rights and duties.

Line-Item (LNITM), def: A supply, service, or data identified in a contract, solicitation, or purchase request by a number.

Offer (OFFER), def: An unsolicited proposal or a response to a solicitation that, if accepted, would bind the offeror to the resultant contract.

Organization (ORG), def: A DLA element whose structure is prescribed by a competent authority and is responsible for specific functions.

Packaging (PKGNG), def: Preservation, packing and marking of products for shipping, stowage, and storage.

Performance (PRFMC), def: A given contractor's effectiveness and efficiency to satisfy contractual obligations.

Preaward-Survey (PAS), def: Survey of offerors on a bid performed prior to award of contract to assess the capability of a bidder to fulfill contract requirements.

Product (PROD), def: Anything produced by human or mechanical effort or by natural processes.

Production (PRODC), def: The conversion of raw materials into products and/or components thereof through a series of manufacturing processes.

Purchase-Request (PR), def: A document that describes the requirements for supplies or services to be procured. The purchase request provides the authority for procurement and initiates the solicitation.

Quality-Assurance (QA), def: Management of activities through which the government achieves the quality of a product or user satisfaction; the assurance that the quality characteristics of products, materials, and processes are controlled through the activities of product audits, inspection and testing, development of adequate contract and specification requirements, and reviews.

Safety (SFTY), def: Prevention or protection against injury or loss.

Solicitation (SOLCN), def: An Invitation for Bid (IFB), Request for Proposal (RFP), or Request for Quote (RFQ) that contains the necessary information to enable prospective contractors to prepare a bid, proposal, or quotation in a responsive manner.

Statement-of-Work (SOW), def: A description of the essential physical characteristics and functions required to meet the government's minimum needs.

Technical (TECH), def: Specialized or unusual practical capability, especially of mechanical or scientific subjects.

Transportation (TRNSP), def: Movement or shipment of materials, products, and passengers.

Waivers-Deviations (WAIVR-DEVTN), def: Written authorizations to depart from specified requirements or to accept a manufactured item that departs from specified requirements.

APPENDIX F

CONFIGURATION MANAGEMENT DISCUSSION FOR CONTRACTOR PROFILE SYSTEM

CONCEPTS

- o ARCHITECTURES AND DOCUMENTS ARE COMPRISED OF MANY INDIVIDUAL CONFIGURATION ITEMS WHICH:
    - oo ARE PRODUCED BY DIFFERENT TOOLS
    - oo MAY BE COMPONENTS OF MORE THAN ONE ARCHITECTURE AND / OR DOCUMENT
    - oo ARE ANALYZED, DESIGNED, DEVELOPED, AND / OR MAINTAINED BY DIFFERENT INDIVIDUALS
    - oo MAY RESIDE IN DIFFERENT PHYSICAL LOCATIONS
    - oo NEED TO BE KEPT IN LOGICAL 'SYNCH' WITH EACH OTHER

A CONFIGURATION MANAGEMENT APPROACH IS REQUIRED WHICH PROVIDES

- o LOGICAL ASSOCIATION OF ARCHITECTURES AND DOCUMENTS WITH THEIR RESPECTIVE COMPONENTS (CONFIGURATION ITEMS)
- o PROGRESSIVE VERSION CONTROL
- o STATUS AND TRACKING INFORMATION
- o ASSISTANCE IN IDENTIFYING POSSIBLE PROBLEMS AND CRITICAL PATH ITEMS

INFORMATION REQUIRED TO SUPPORT A CONFIGURATION MANAGEMENT APPROACH WHICH ADDRESSES THE ABOVE INCLUDES, BUT IS NOT LIMITED TO

- **o NAME** **(INDEX) NAME OF CONFIGURATION ITEM**
- **o DESCRIPTION** **DESCRIPTION OF CONFIGURATION ITEM**
- **o TYPE (TBD)** **ARCH (ARCHITECTURE); DOC (DOCUMENT); ETF (ENABLE TEXT FILE); IEWP (IEW PRODUCT); PCDP (PC DICTIONARY PRODUCT); HGP (HARVARD GRAPHICS PRODUCT)**
- **o TOOL** **ENABLE, IEW, PCD, HG)**
- **o LEAD PERSON** **INDIVIDUAL CHARGED WITH PRIMARY RESPONSIBILITY FOR GIVEN CONFIGURATION ITEM**

- FACILITATOR INDIVIDUAL CHARGED WITH RESPONSIBILITY PROVIDE TRAINING IN GIVEN CONFIGURATION ITEM

- START DATE

- DUE DATE

- PCT DONE AS REPORTED BY LEAD PERSON

- LAST REP DATE DATE OF MOST RECENT STATUS REPORT BY LEAD PERSON

- PHYSICAL LOCATION FOR EXAMPLE, FILE NAME AND MACHINE ON WHICH CONFIGURATION ITEM RESIDES

- SET OF CONTEXTUAL INDICES, EACH OF WHICH INDICATES THAT THE GIVEN CONFIGURATION ITEM IS A COMPONENT OF A PARTICULAR DOCUMENT, ARCHITECTURE, UNIT, ETC.